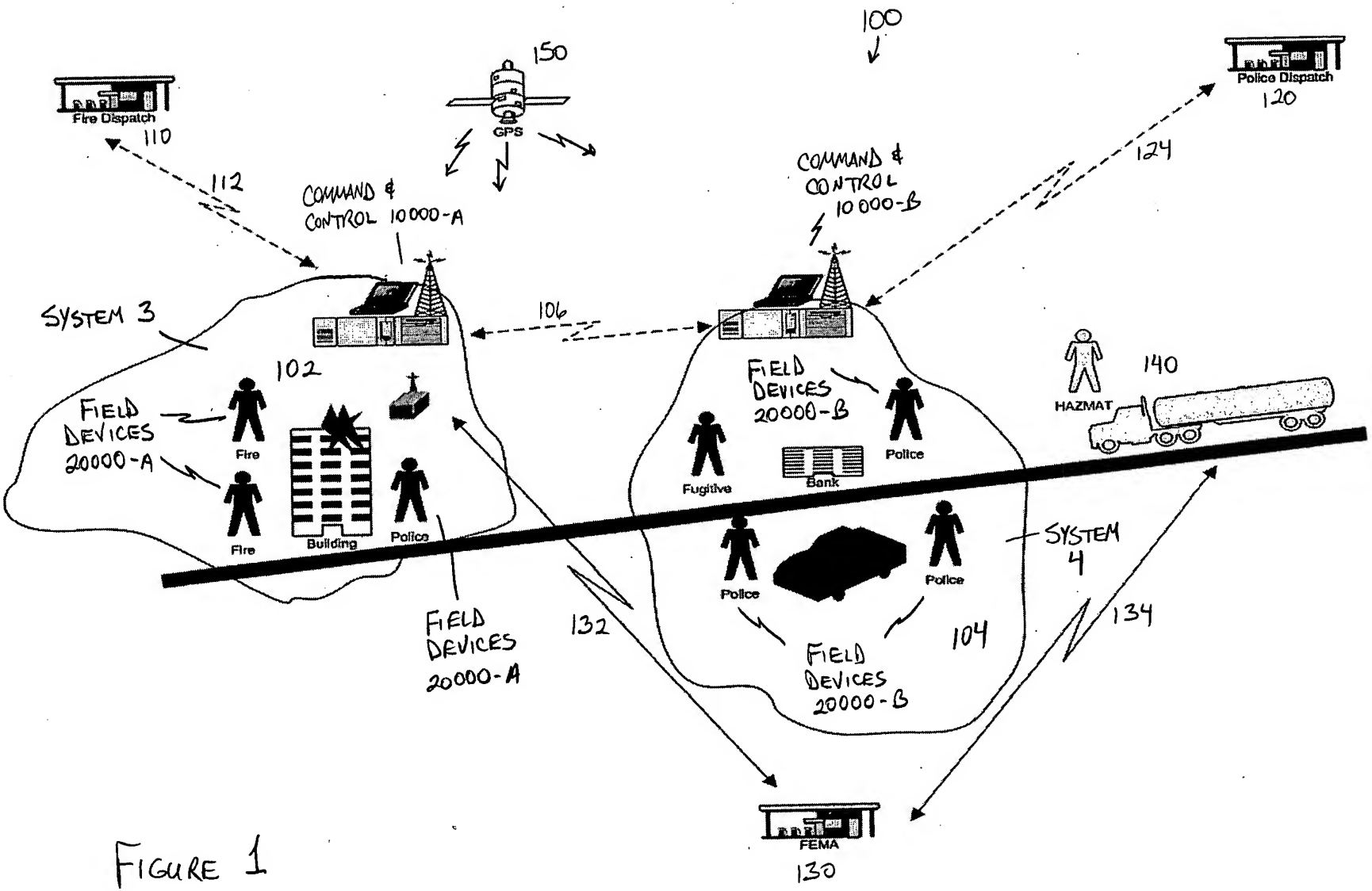

100
150
GPS
Fire Dispatch
110
112
Police Dispatch
120
124
COMMAND & CONTROL 10000-A
COMMAND & CONTROL 10000-B
106
SYSTEM 3
102
FIELD DEVICES 20000-A
Fire
Fire
Building
Police
FIELD DEVICES 20000-B
Fugitive
Bank
Police
HAZMAT
140
SYSTEM 4
Police
Police
FIELD DEVICES 20000-A
132
FIELD DEVICES 20000-B
104
134
FEMA
130

FIGURE 1

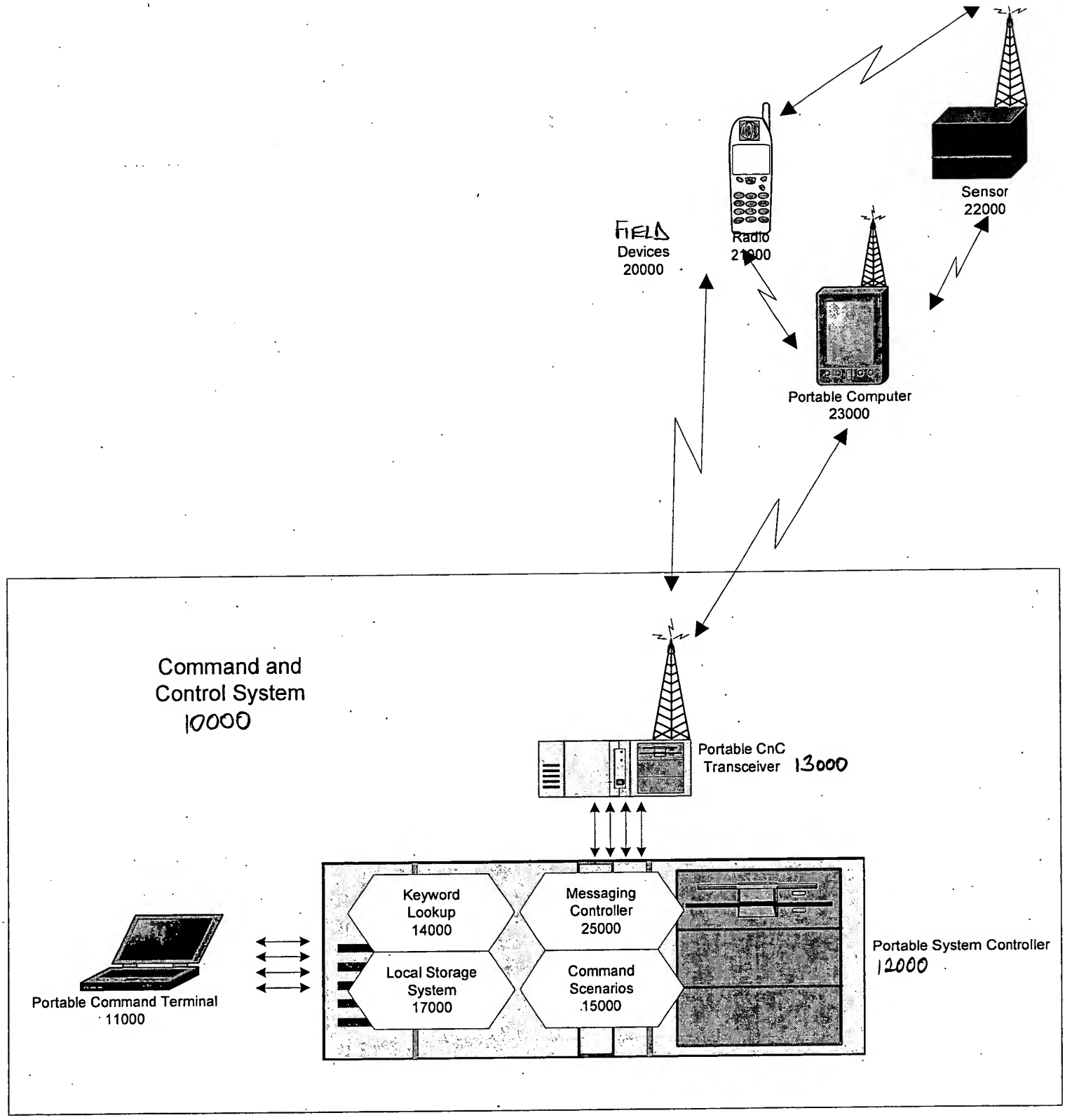

Sensor
22000
FIELD
Devices
20000
Radio
21000
Portable Computer
23000
Command and
Control System
10000
Portable CnC
Transceiver 13000
Keyword
Lookup
14000
Messaging
Controller
25000
Local Storage
System
17000
Command
Scenarios
15000
Portable System Controller
12000
Portable Command Terminal
11000

FIGURE 2

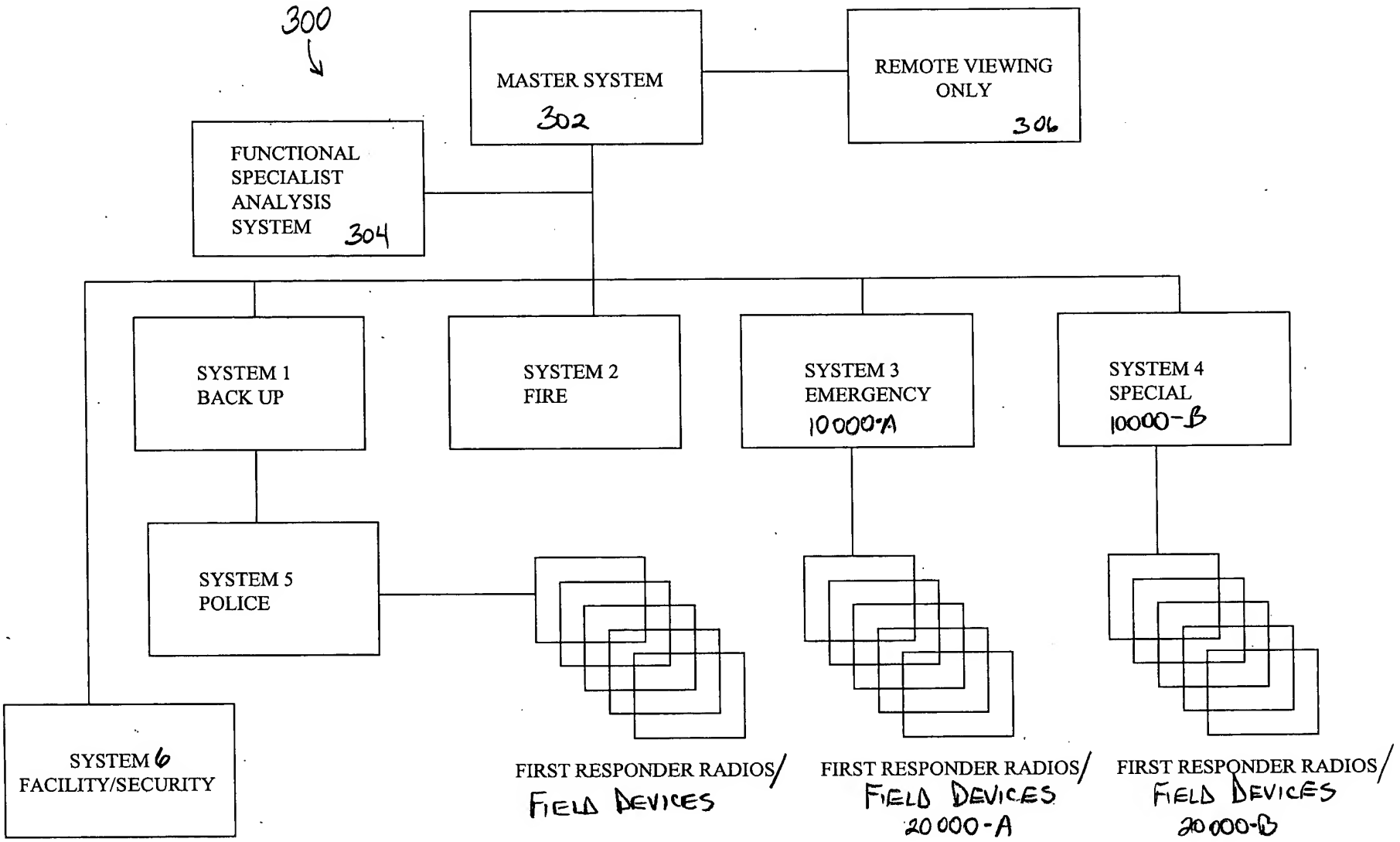

300
MASTER SYSTEM
302
REMOTE VIEWING ONLY
306
FUNCTIONAL SPECIALIST ANALYSIS SYSTEM
304
SYSTEM 1 BACK UP
SYSTEM 2 FIRE
SYSTEM 3 EMERGENCY
10000-A
SYSTEM 4 SPECIAL
10000-B
SYSTEM 5 POLICE
SYSTEM 6 FACILITY/SECURITY
FIRST RESPONDER RADIOS/ FIELD DEVICES
FIRST RESPONDER RADIOS/ FIELD DEVICES 20000-A
FIRST RESPONDER RADIOS/ FIELD DEVICES 20000-B

FIGURE 3

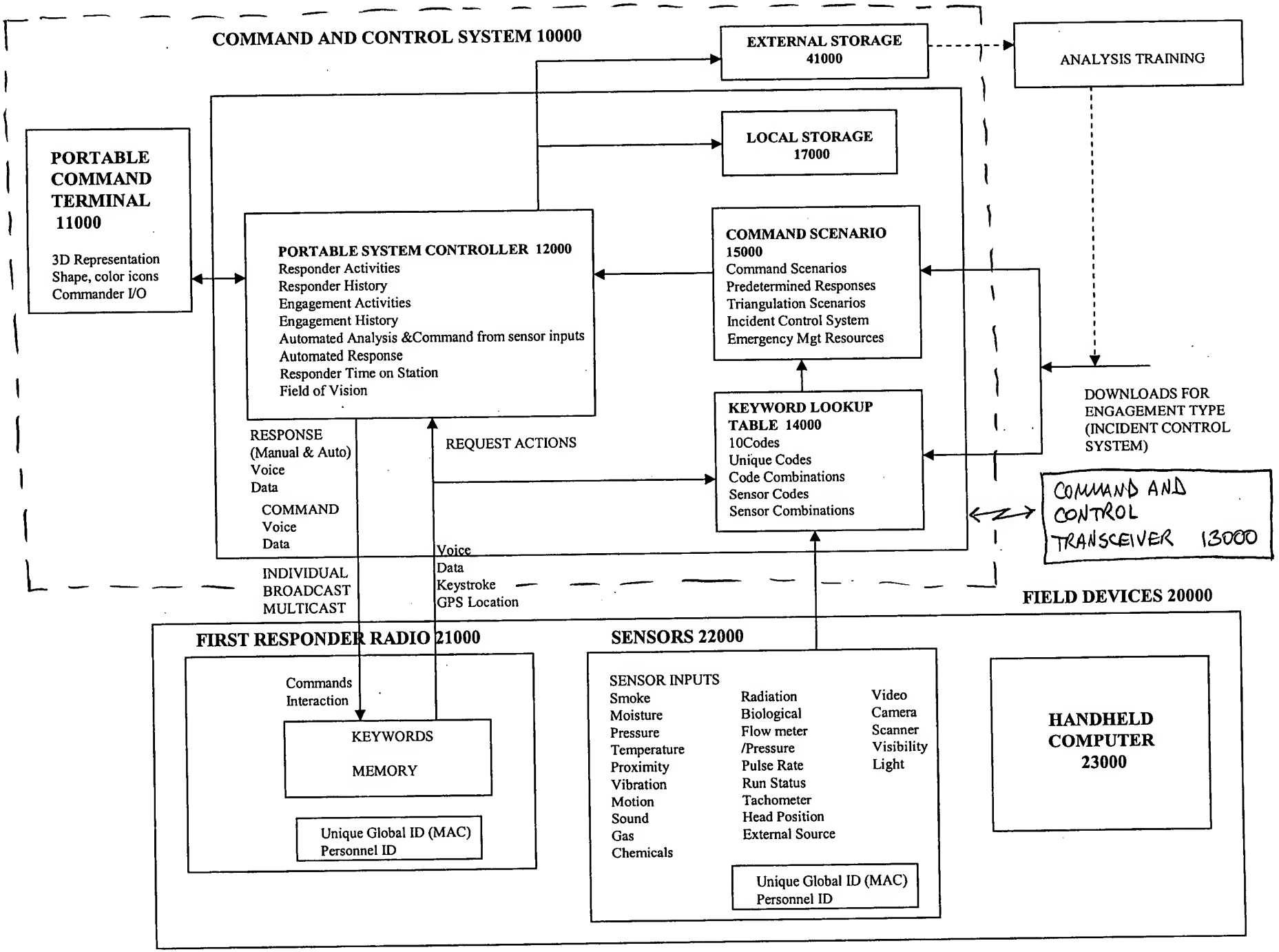

COMMAND AND CONTROL SYSTEM 10000
EXTERNAL STORAGE 41000
ANALYSIS TRAINING
LOCAL STORAGE 17000
PORTABLE COMMAND TERMINAL 11000
3D Representation
Shape, color icons
Commander I/O
PORTABLE SYSTEM CONTROLLER 12000
Responder Activities
Responder History
Engagement Activities
Engagement History
Automated Analysis &Command from sensor inputs
Automated Response
Responder Time on Station
Field of Vision
COMMAND SCENARIO 15000
Command Scenarios
Predetermined Responses
Triangulation Scenarios
Incident Control System
Emergency Mgt Resources
KEYWORD LOOKUP TABLE 14000
10Codes
Unique Codes
Code Combinations
Sensor Codes
Sensor Combinations
DOWNLOADS FOR ENGAGEMENT TYPE (INCIDENT CONTROL SYSTEM)
RESPONSE (Manual & Auto)
Voice
Data
REQUEST ACTIONS
COMMAND
Voice
Data
COMMAND AND CONTROL TRANSCEIVER 13000
Voice
Data
Keystroke
GPS Location
INDIVIDUAL
BROADCAST
MULTICAST
FIELD DEVICES 20000
FIRST RESPONDER RADIO 21000
Commands
Interaction
KEYWORDS
MEMORY
Unique Global ID (MAC)
Personnel ID
SENSORS 22000
SENSOR INPUTS
Smoke
Moisture
Pressure
Temperature
Proximity
Vibration
Motion
Sound
Gas
Chemicals
Radiation
Biological
Flow meter
/Pressure
Pulse Rate
Run Status
Tachometer
Head Position
External Source
Video
Camera
Scanner
Visibility
Light
Unique Global ID (MAC)
Personnel ID
HANDHELD COMPUTER 23000

FIGURE 4

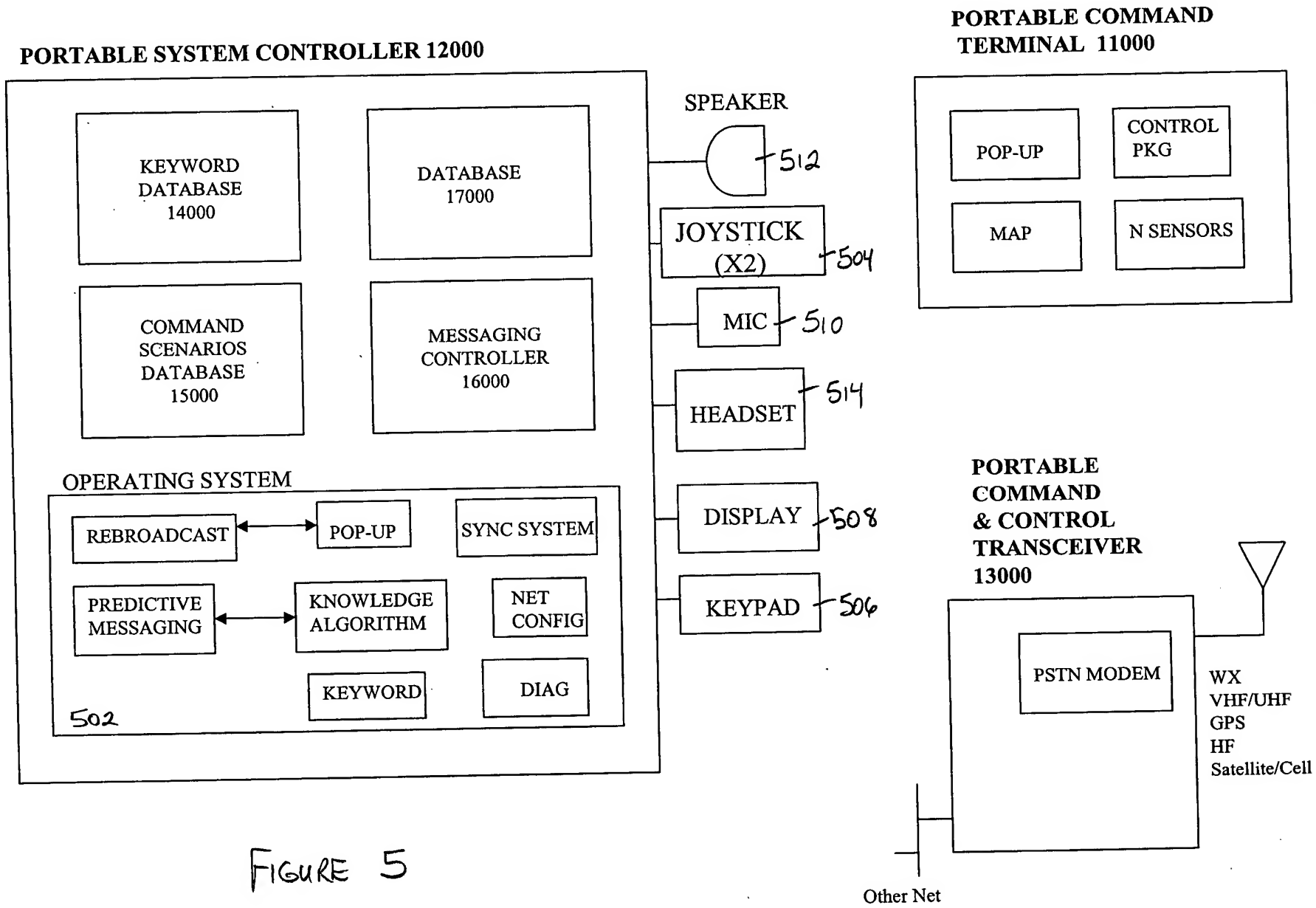

PORTABLE SYSTEM CONTROLLER 12000
KEYWORD DATABASE 14000
DATABASE 17000
COMMAND SCENARIOS DATABASE 15000
MESSAGING CONTROLLER 16000
OPERATING SYSTEM
REBROADCAST
POP-UP
SYNC SYSTEM
PREDICTIVE MESSAGING
KNOWLEDGE ALGORITHM
NET CONFIG
KEYWORD
DIAG
502
SPEAKER
512
JOYSTICK (X2)
504
MIC
510
HEADSET
514
DISPLAY
508
KEYPAD
506
PORTABLE COMMAND TERMINAL 11000
POP-UP
CONTROL PKG
MAP
N SENSORS
PORTABLE COMMAND & CONTROL TRANSCEIVER 13000
PSTN MODEM
WX
VHF/UHF
GPS
HF
Satellite/Cell
Other Net

FIGURE 5

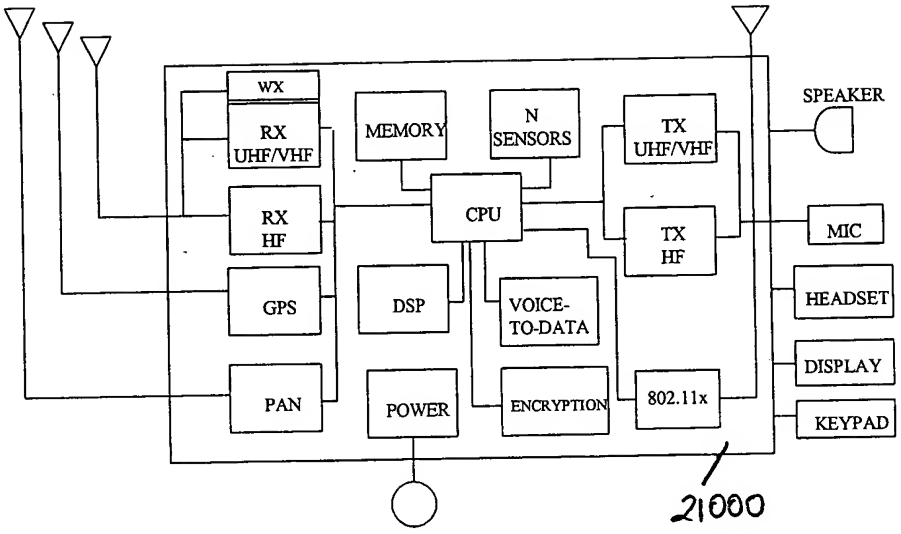

WX
RX UHF/VHF
RX HF
GPS
PAN
MEMORY
N SENSORS
CPU
DSP
VOICE-TO-DATA
POWER
ENCRYPTION
TX UHF/VHF
TX HF
802.11x
SPEAKER
MIC
HEADSET
DISPLAY
KEYPAD
21000

FIGURE 6

FIGURE 7

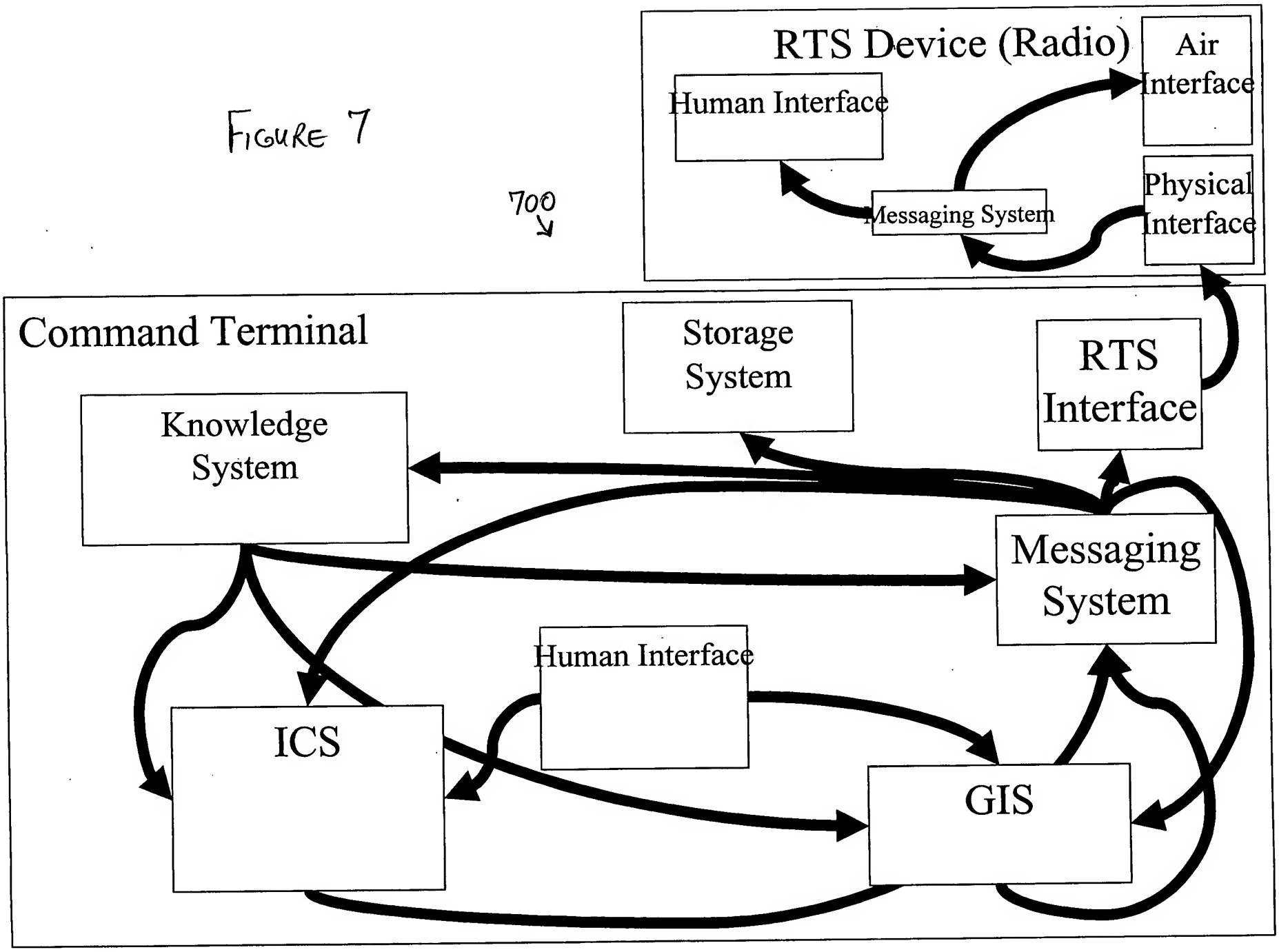
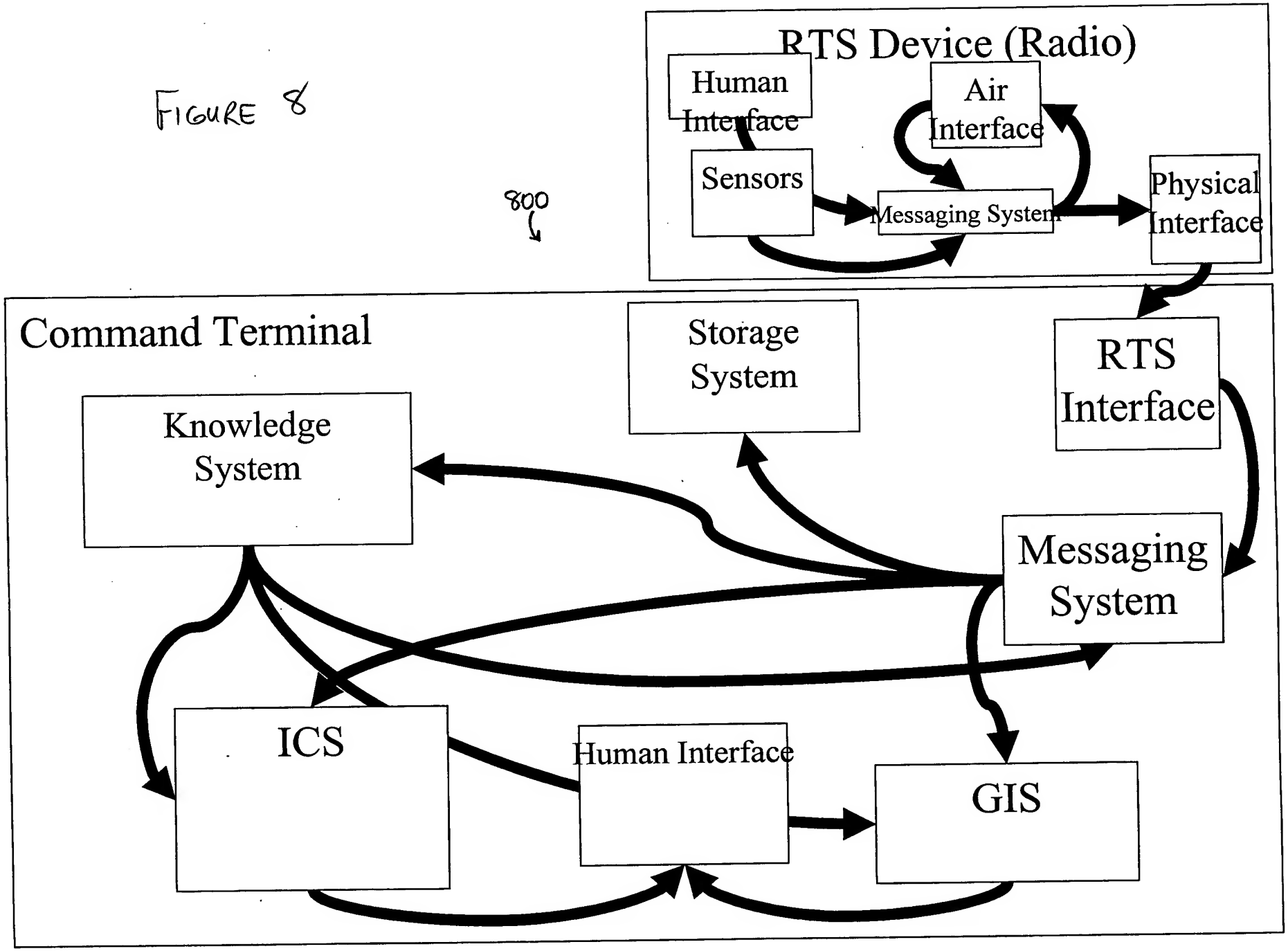

700
RTS Device (Radio)
Air Interface
Human Interface
Physical Interface
Messaging System
Command Terminal
Storage System
RTS Interface
Knowledge System
Messaging System
Human Interface
ICS
GIS

FIGURE 8


800
RTS Device (Radio)
Human Interface
Air Interface
Sensors
Messaging System
Physical Interface
Command Terminal
Storage System
RTS Interface
Knowledge System
Messaging System
ICS
Human Interface
GIS

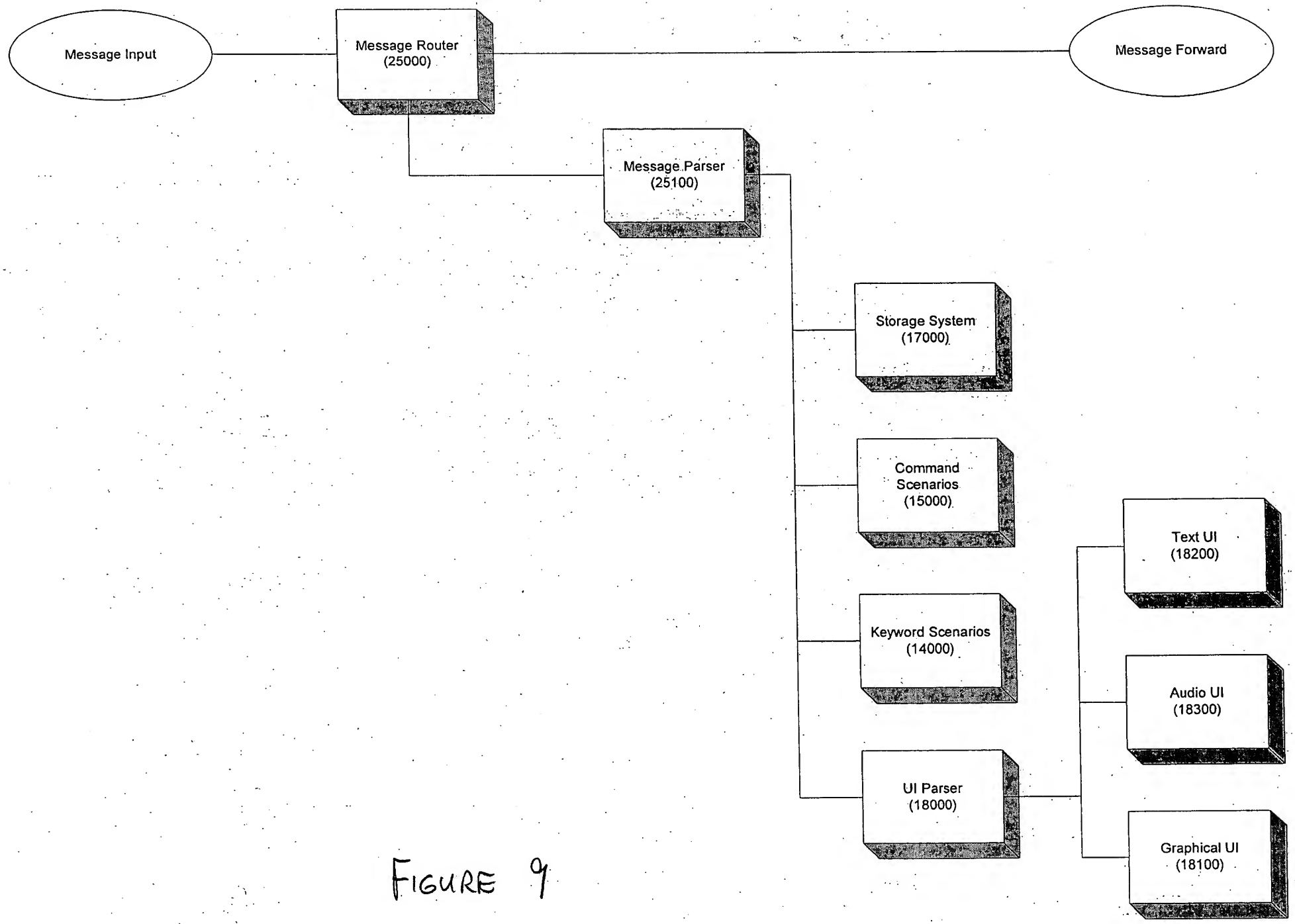

Message Input
Message Router
(25000)
Message Forward
Message Parser
(25100)
Storage System
(17000)
Command
Scenarios
(15000)
Keyword Scenarios
(14000)
UI Parser
(18000)
Text UI
(18200)
Audio UI
(18300)
Graphical UI
(18100)

FIGURE 9

Message Router
25000

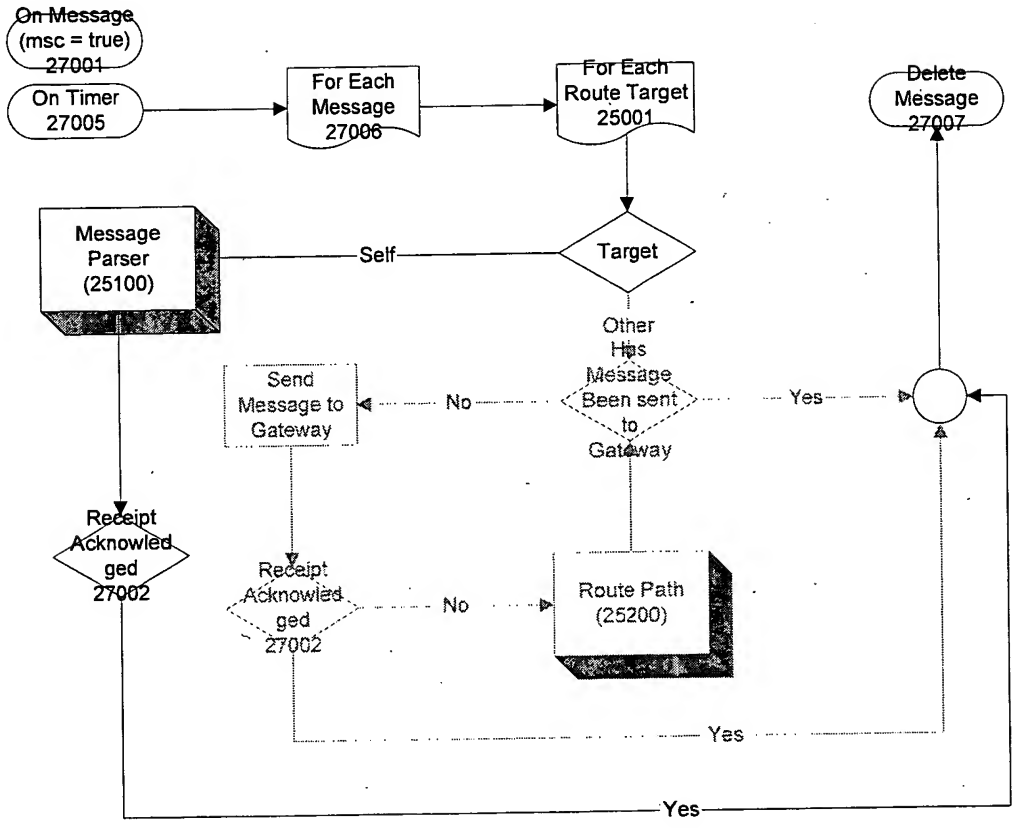


FIGURE 10

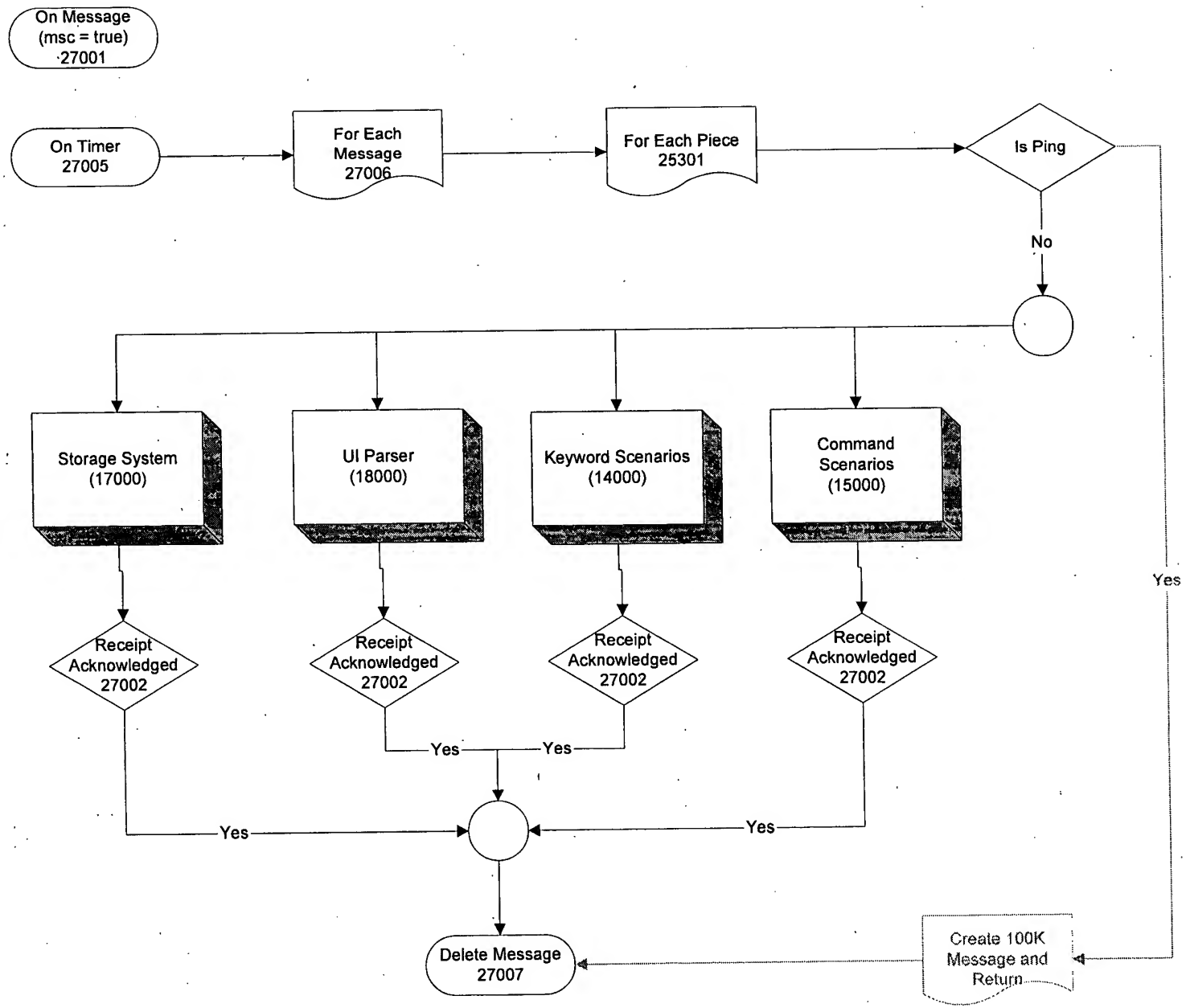

On Message
(msc = true)
27001
On Timer
27005
For Each
Message
27006
For Each Piece
25301
Is Ping
No
Yes
Storage System
(17000)
UI Parser
(18000)
Keyword Scenarios
(14000)
Command
Scenarios
(15000)
Receipt
Acknowledged
27002
Receipt
Acknowledged
27002
Receipt
Acknowledged
27002
Receipt
Acknowledged
27002
Yes
Yes
Yes
Yes
Delete Message
27007
Create 100K
Message and
Return

FIGURE 11

Route Path Determination 25200

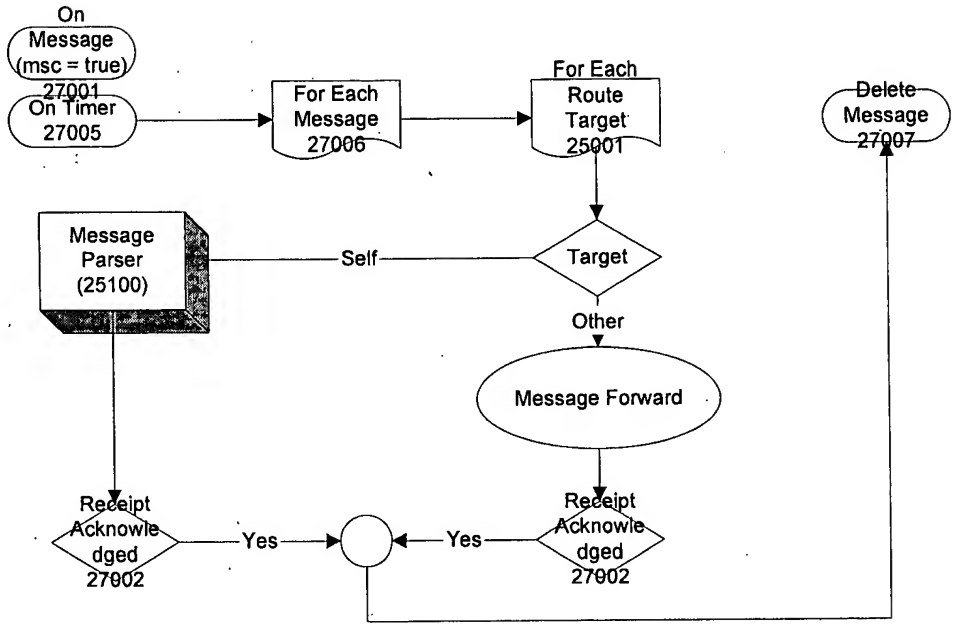


FIGURE 12

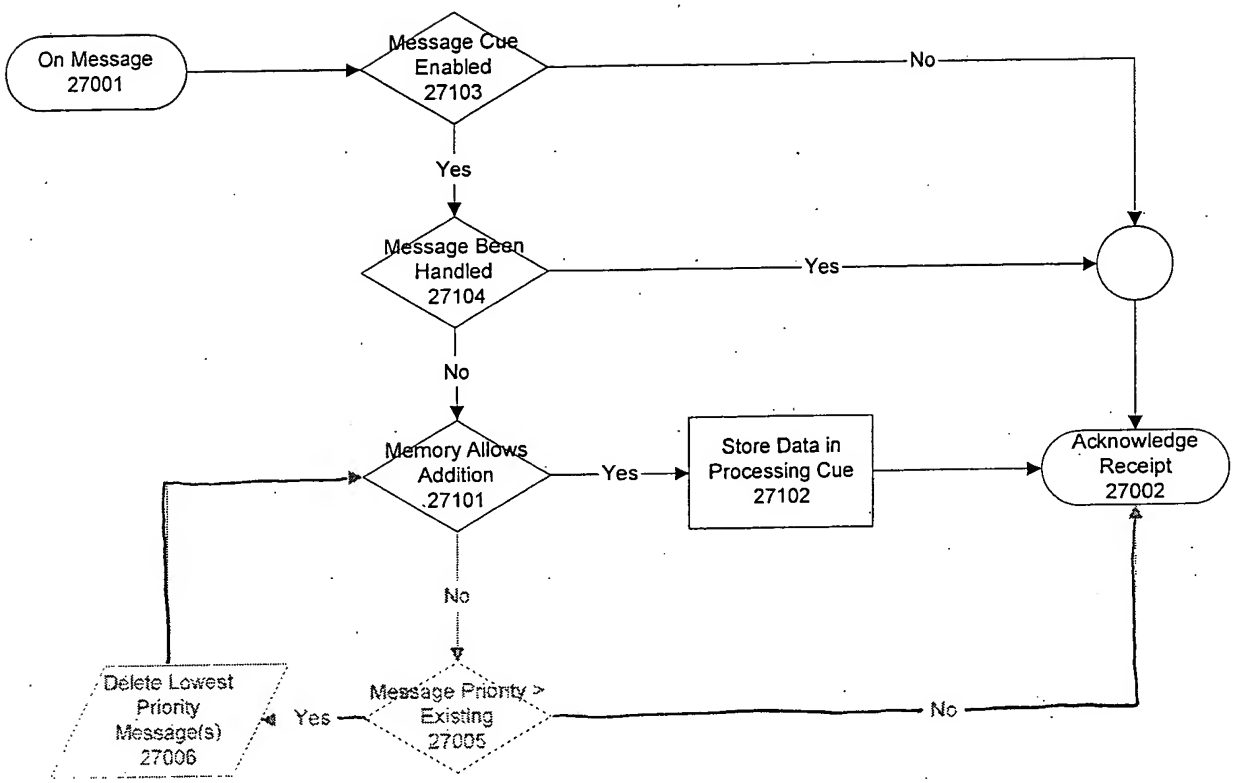

On Message
27001
Message Cue
Enabled
27103
No
Yes
Message Been
Handled
27104
Yes
No
Memory Allows
Addition
27101
Yes
Store Data in
Processing Cue
27102
Acknowledge
Receipt
27002
No
Delete Lowest
Priority
Message(s)
27006
Yes
Message Priority >
Existing
27005
No

FIGURE 13

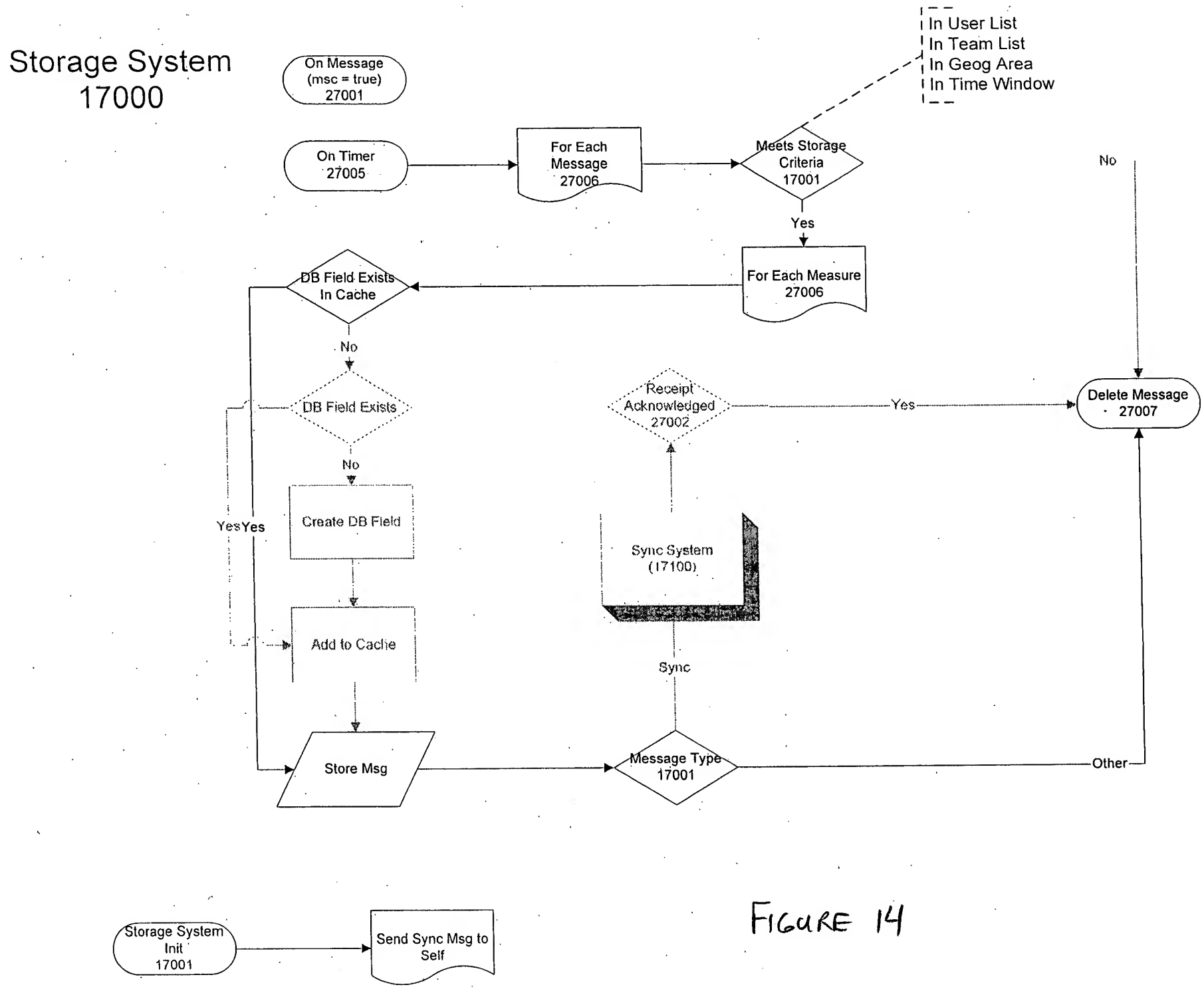

Storage System
17000
On Message
(msc = true)
27001
In User List
In Team List
In Geog Area
In Time Window
On Timer
27005
For Each
Message
27006
Meets Storage
Criteria
17001
No
Yes
For Each Measure
27006
DB Field Exists
In Cache
No
DB Field Exists
No
Create DB Field
Yes
Yes
Add to Cache
Store Msg
Receipt
Acknowledged
27002
Yes
Delete Message
27007
Sync System
(17100)
Sync
Message Type
17001
Other
Storage System
Init
17001
Send Sync Msg to
Self

FIGURE 14

Sync System
17100

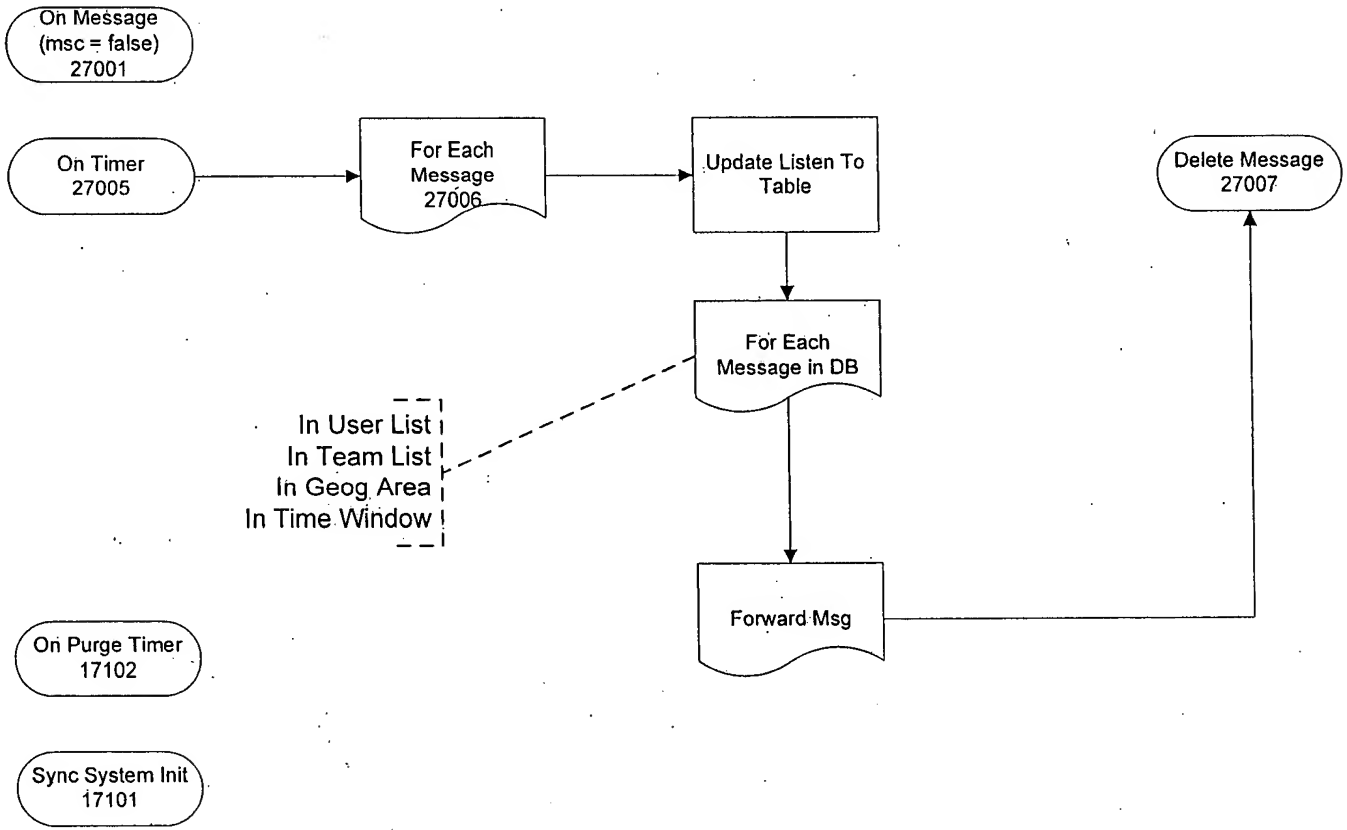


FIGURE 15

Self Configuring Network 16100

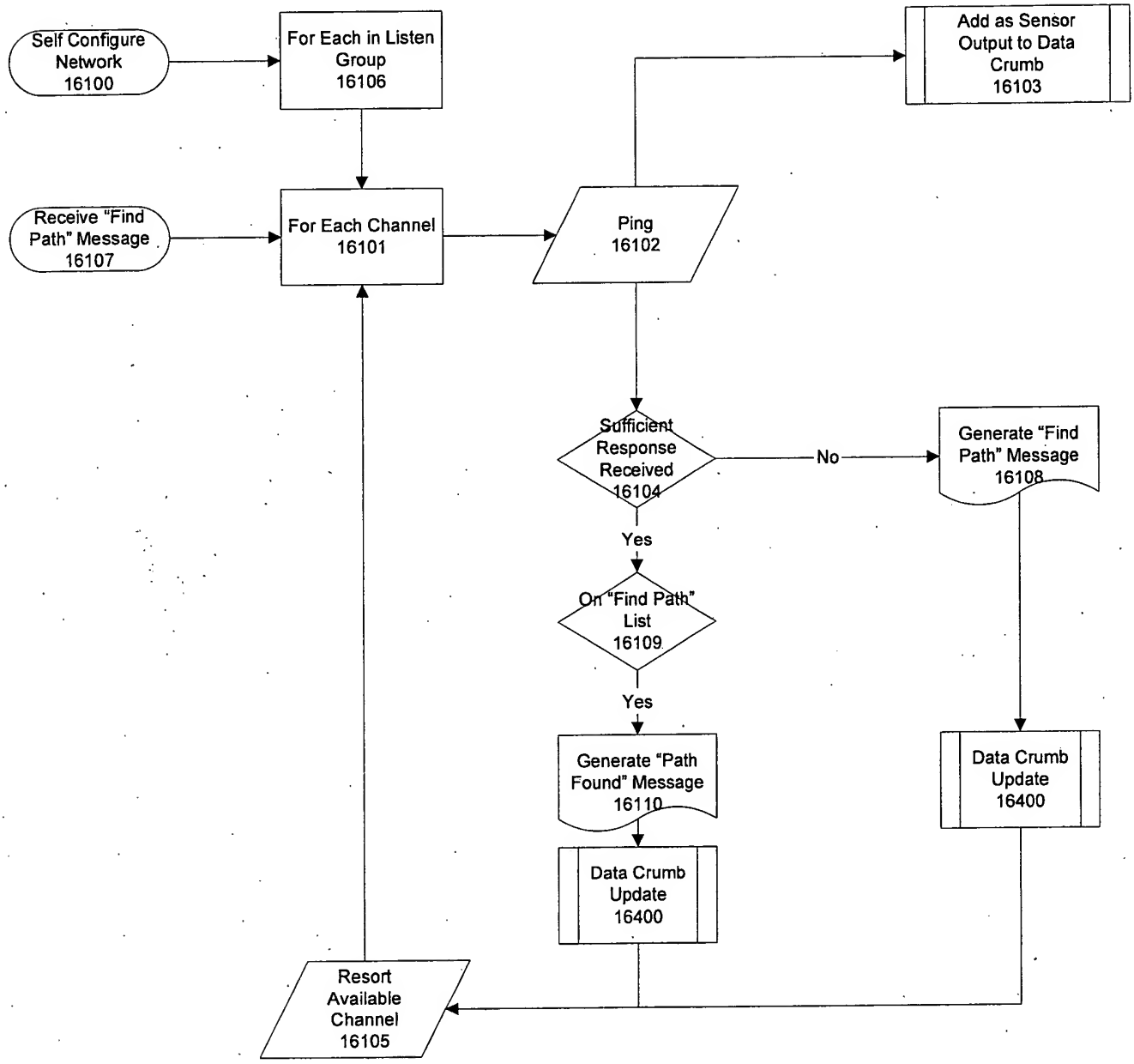


FIGURE 16

Command Scenarios 15000

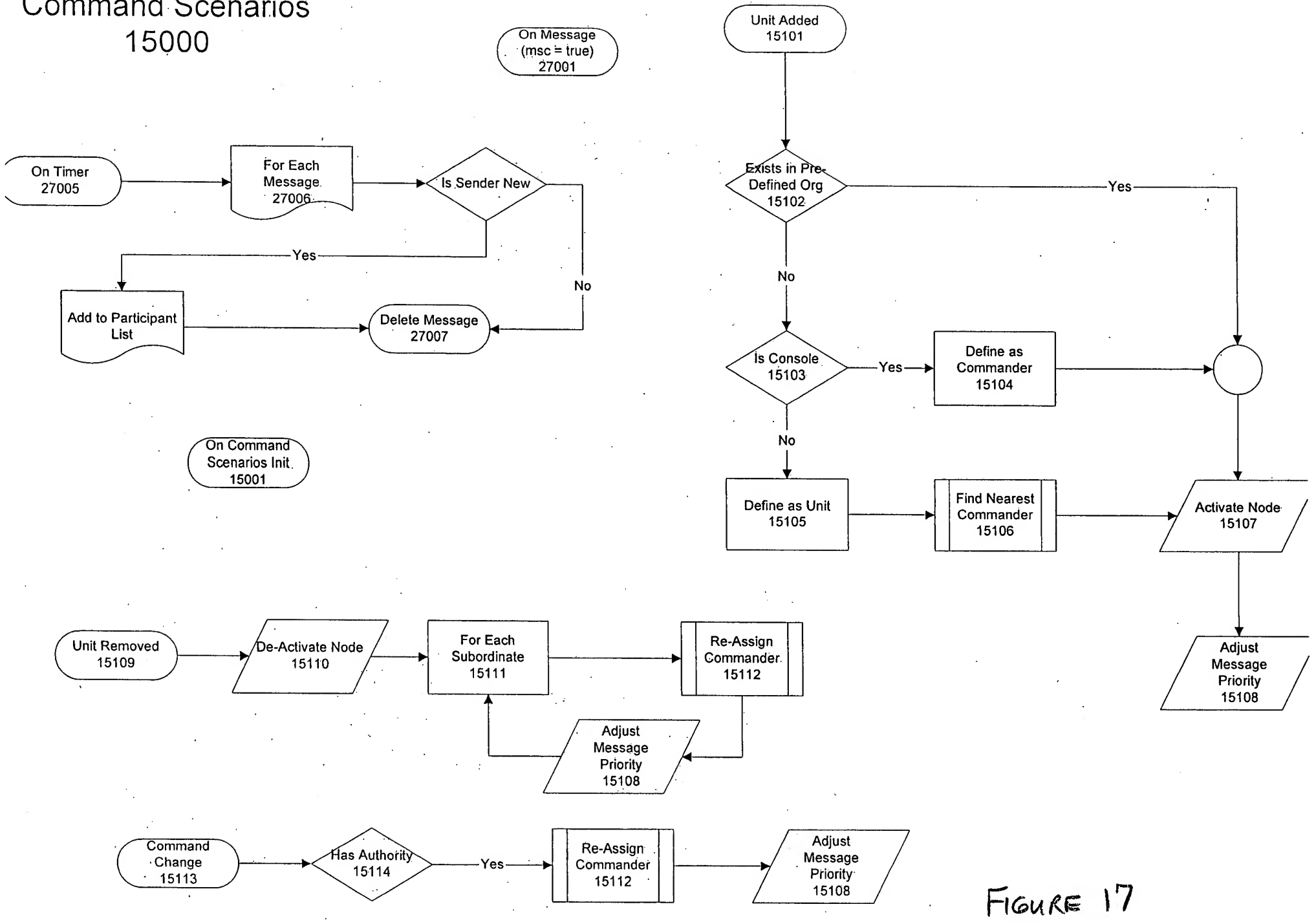
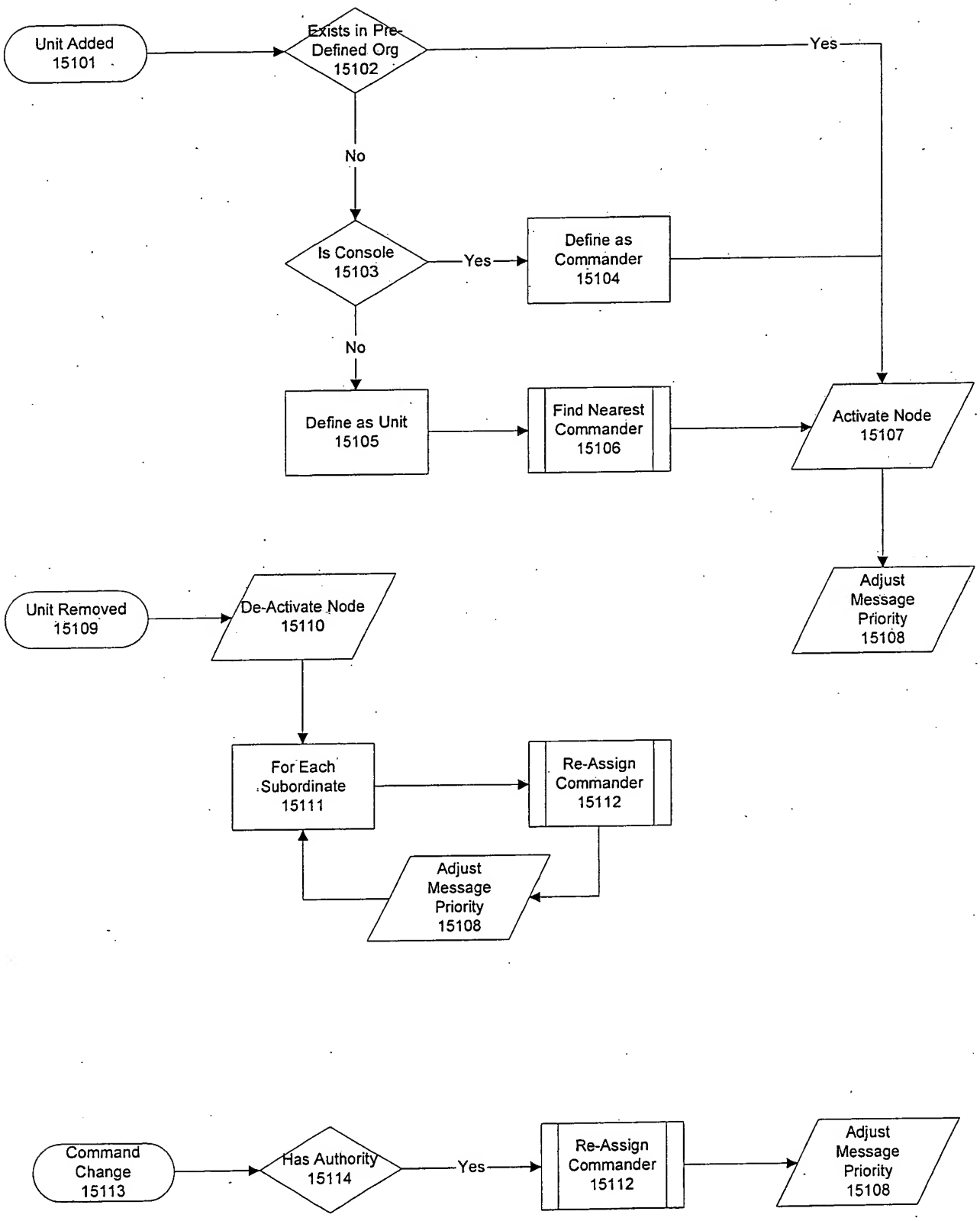


FIGURE 17

Self Configuring Command and Control 15100

FIGURE 18



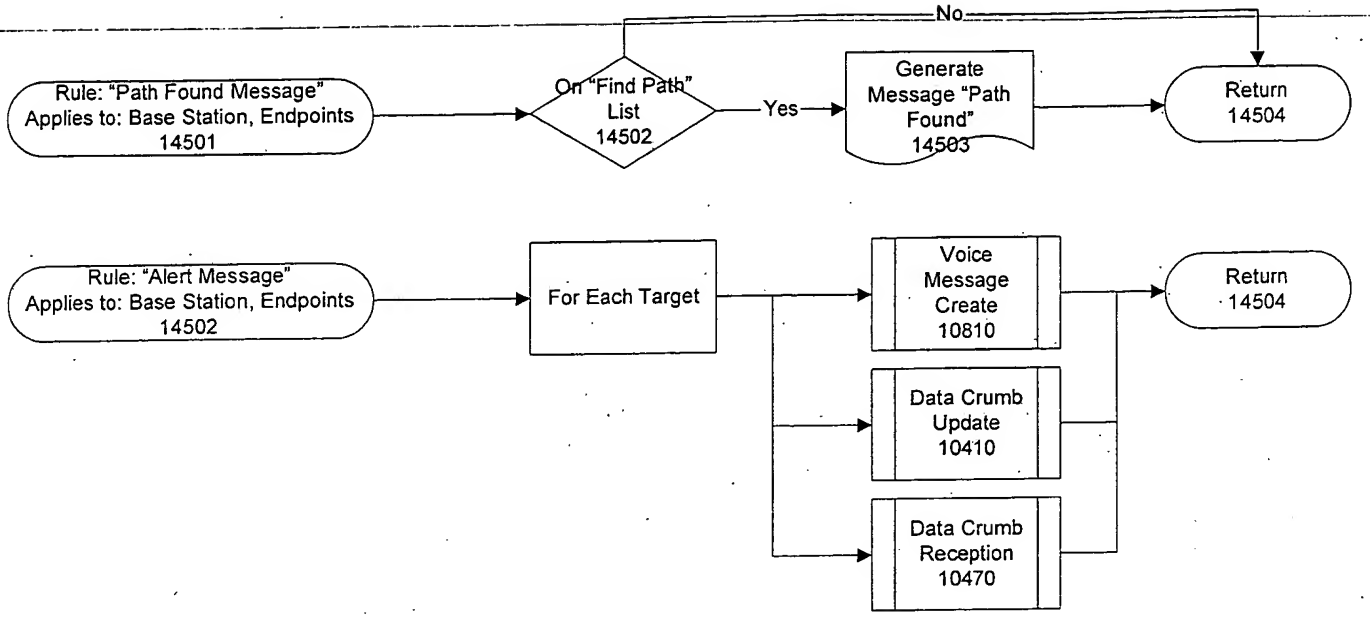

No
Rule: "Path Found Message"
Applies to: Base Station, Endpoints
14501
On "Find Path" List
14502
Yes
Generate Message "Path Found"
14503
Return
14504
Rule: "Alert Message"
Applies to: Base Station, Endpoints
14502
For Each Target
Voice Message Create
10810
Data Crumb Update
10410
Data Crumb Reception
10470
Return
14504

FIGURE 19

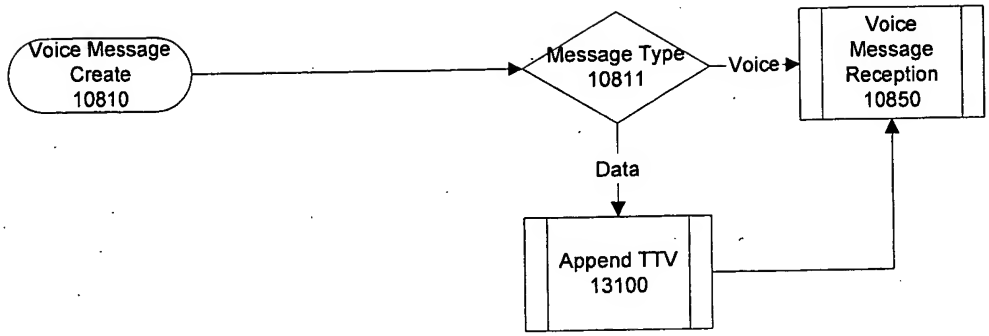

Voice Message Create 10810
Message Type 10811
Voice
Voice Message Reception 10850
Data
Append TTV 13100

FIGURE 20

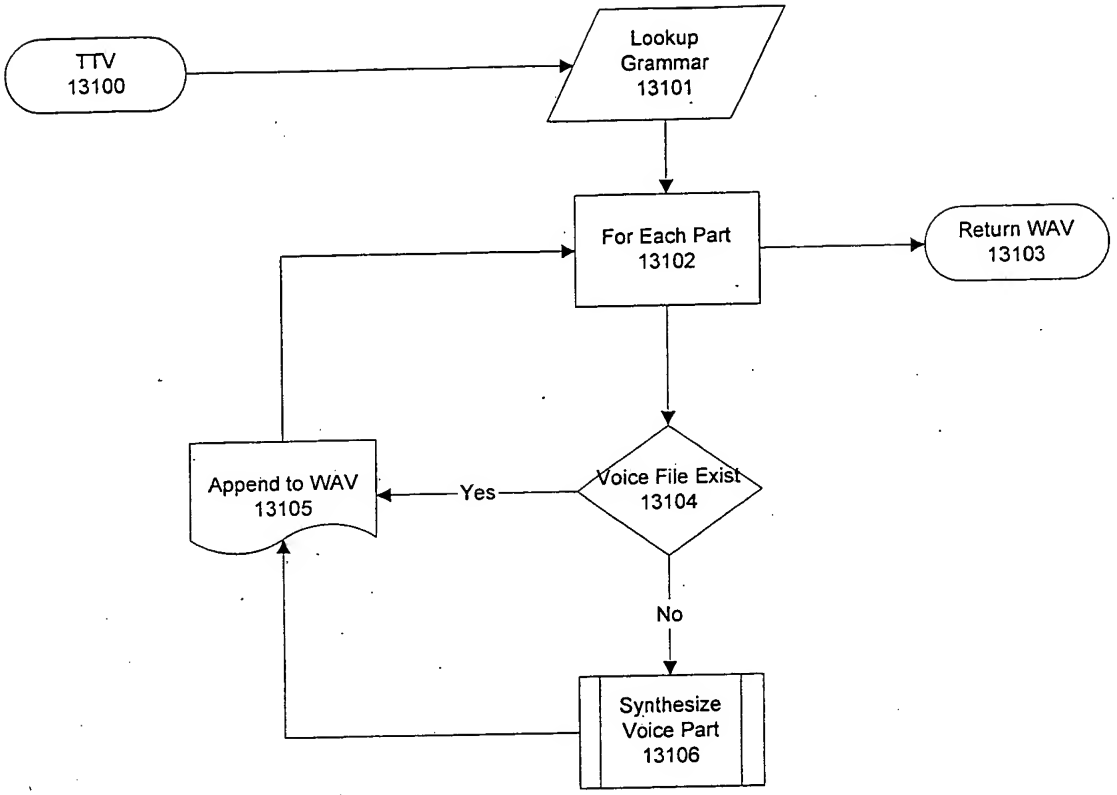

TTV
13100
Lookup
Grammar
13101
For Each Part
13102
Return WAV
13103
Append to WAV
13105
Yes
Voice File Exist
13104
No
Synthesize
Voice Part
13106

FIGURE 21

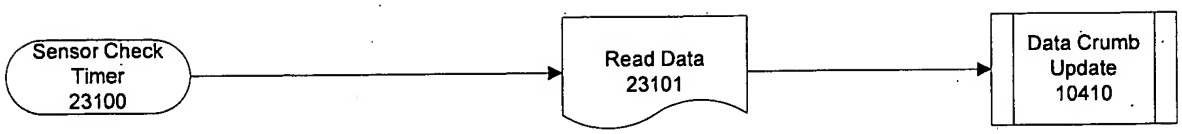

Sensor Check
Timer
23100
Read Data
23101
Data Crumb
Update
10410

FIGURE 22

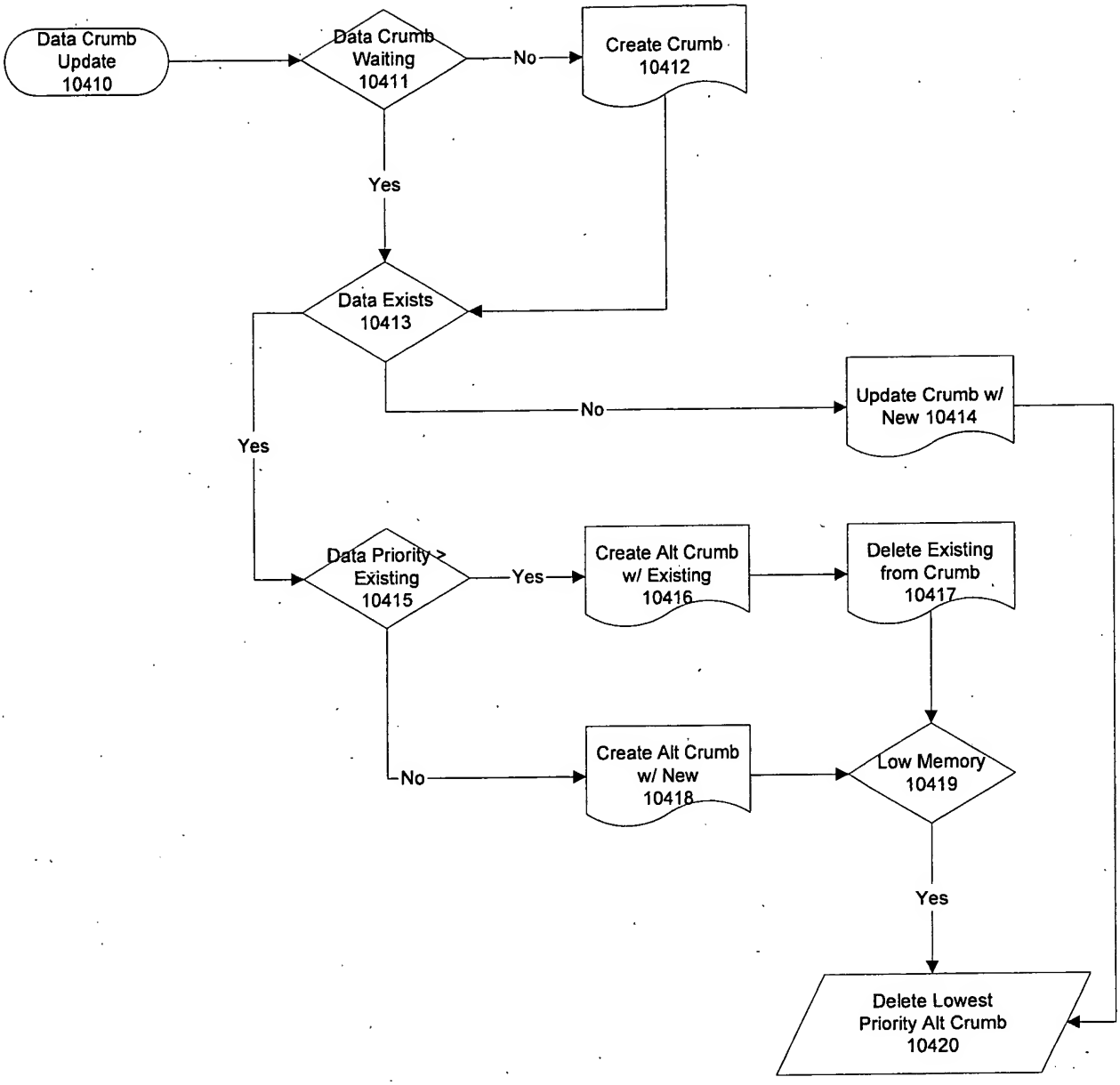

Data Crumb Update 10410
Data Crumb Waiting 10411
No
Create Crumb 10412
Yes
Data Exists 10413
No
Update Crumb w/ New 10414
Yes
Data Priority > Existing 10415
Yes
Create Alt Crumb w/ Existing 10416
Delete Existing from Crumb 10417
No
Create Alt Crumb w/ New 10418
Low Memory 10419
Yes
Delete Lowest Priority Alt Crumb 10420

FIGURE 23

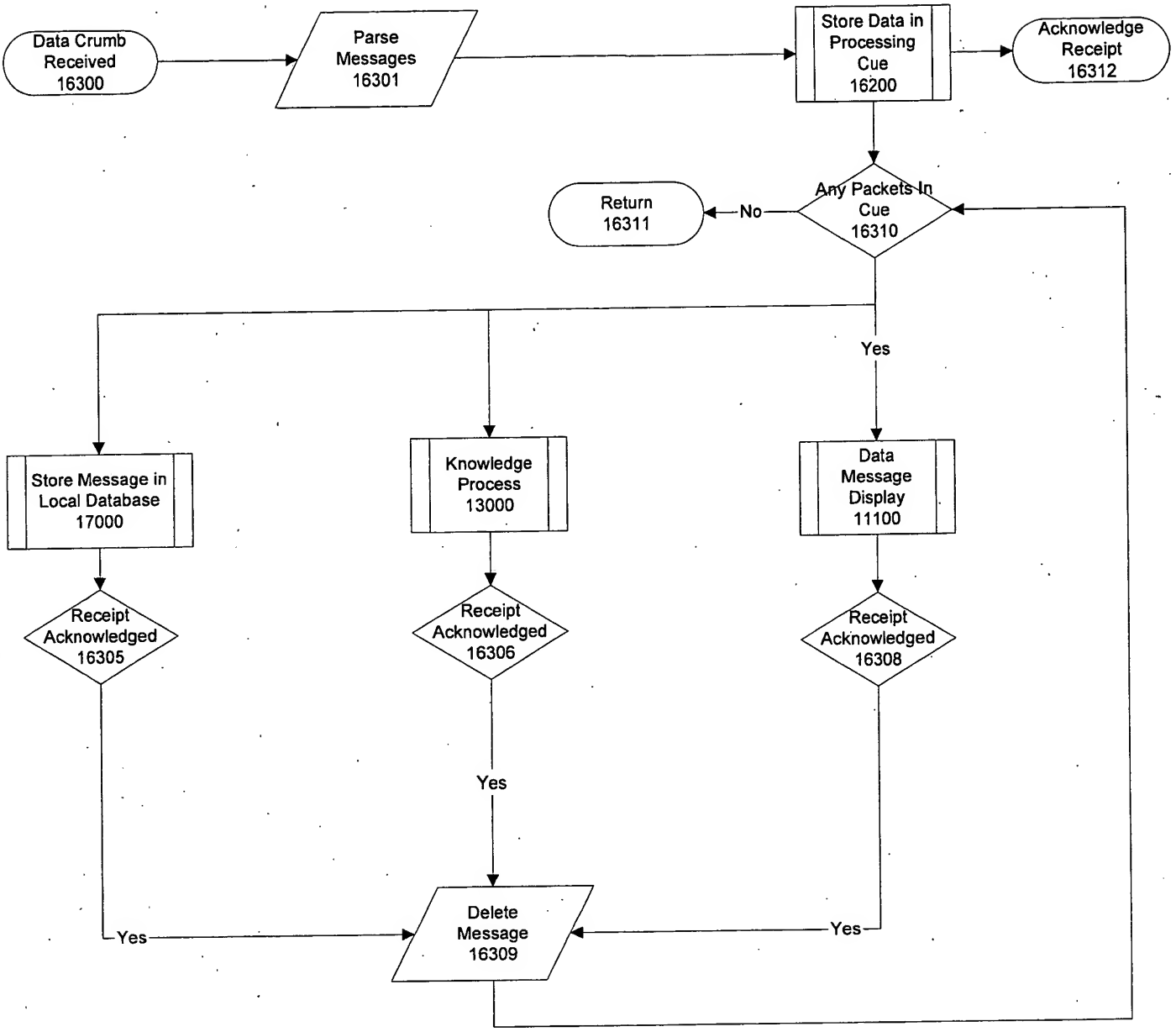

Data Crumb Received 16300
Parse Messages 16301
Store Data in Processing Cue 16200
Acknowledge Receipt 16312
Any Packets In Cue 16310
No
Return 16311
Yes
Store Message in Local Database 17000
Knowledge Process 13000
Data Message Display 11100
Receipt Acknowledged 16305
Receipt Acknowledged 16306
Receipt Acknowledged 16308
Yes
Yes
Yes
Delete Message 16309

FIGURE 24

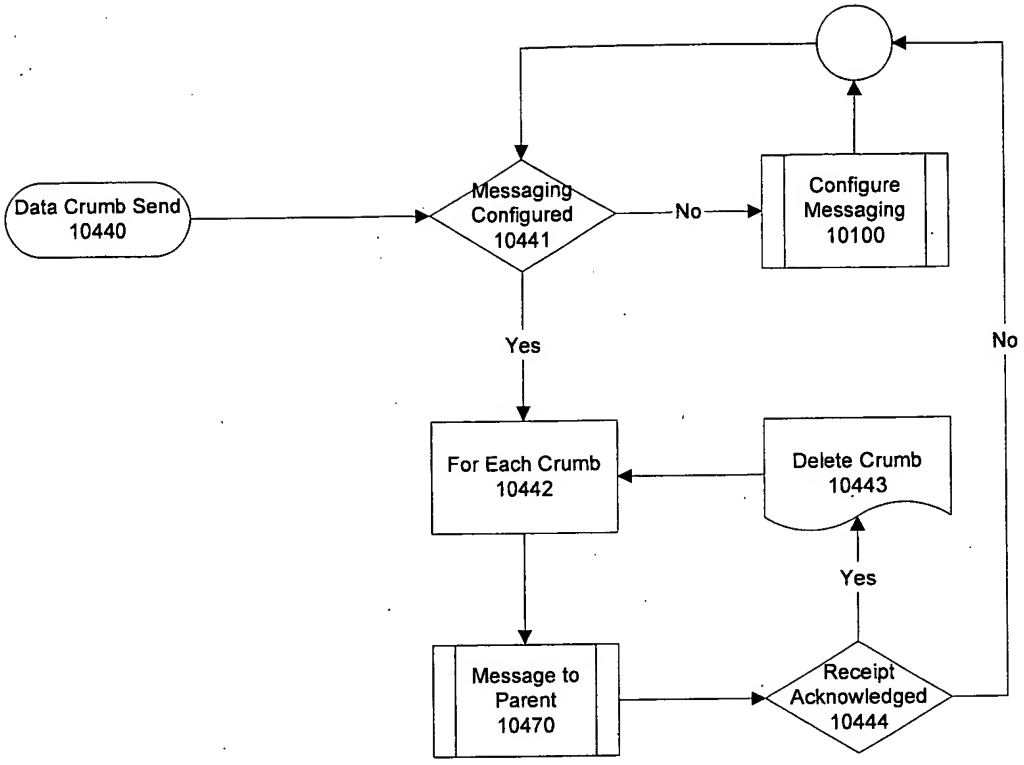

Data Crumb Send
10440
Messaging
Configured
10441
No
Configure
Messaging
10100
Yes
No
For Each Crumb
10442
Delete Crumb
10443
Yes
Message to
Parent
10470
Receipt
Acknowledged
10444

FIGURE 25

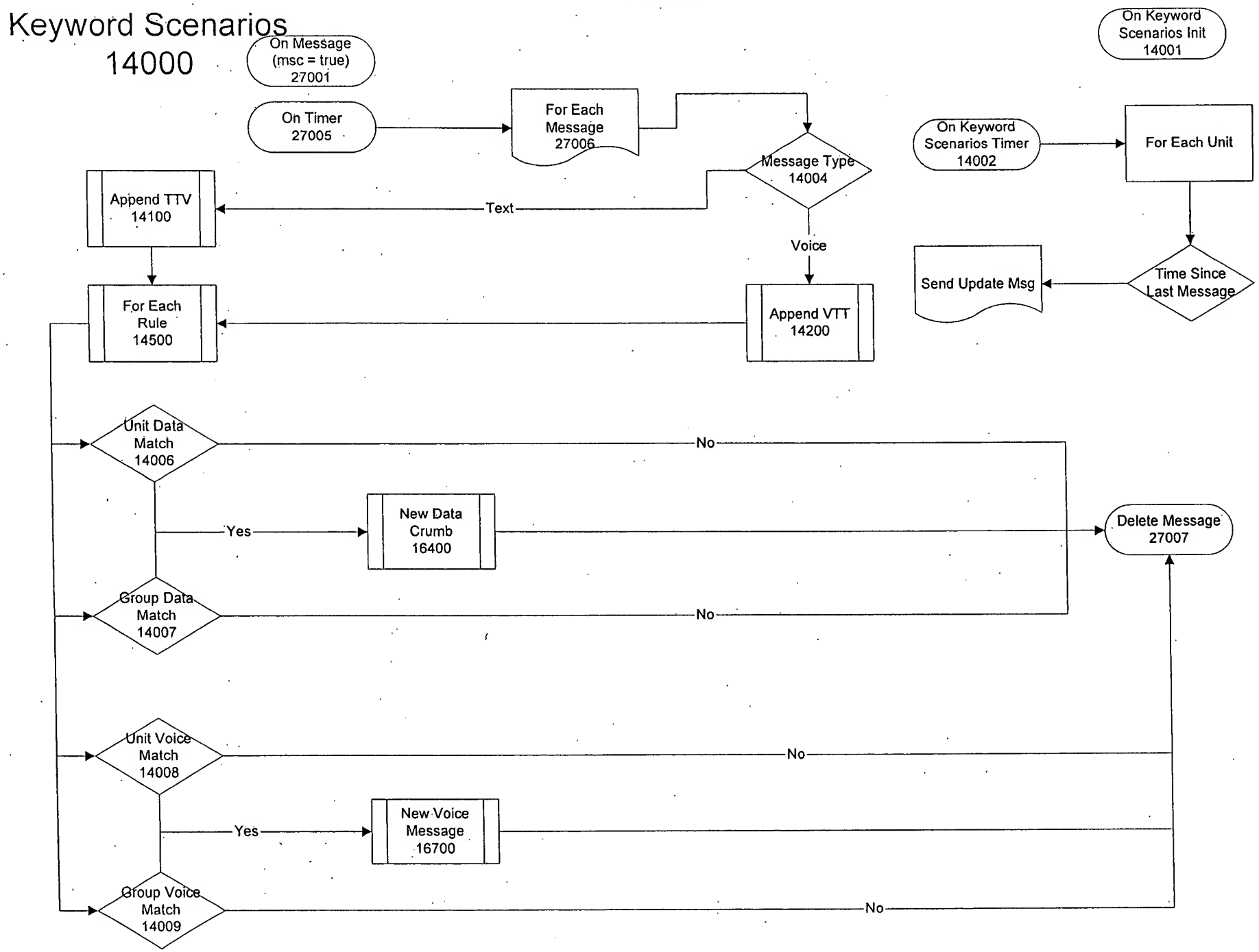

Keyword Scenarios
14000
On Message
(msc = true)
27001
On Timer
27005
For Each
Message
27006
Message Type
14004
Text
Voice
Append TTV
14100
For Each
Rule
14500
Append VTT
14200
On Keyword
Scenarios Init
14001
On Keyword
Scenarios Timer
14002
For Each Unit
Time Since
Last Message
Send Update Msg
Unit Data
Match
14006
No
Yes
New Data
Crumb
16400
Delete Message
27007
Group Data
Match
14007
No
Unit Voice
Match
14008
No
Yes
New Voice
Message
16700
Group Voice
Match
14009
No

FIGURE 26

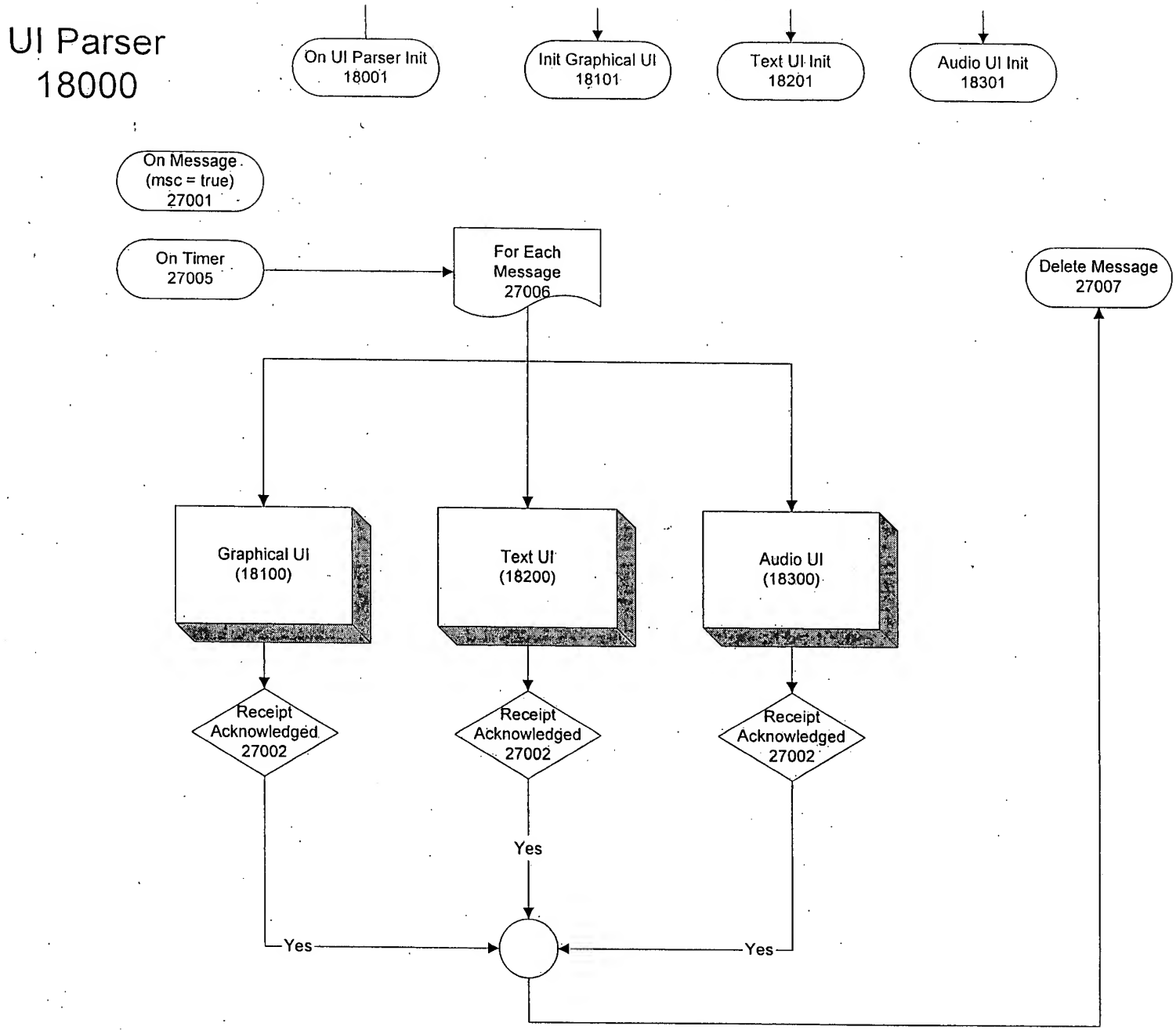

UI Parser
18000
On UI Parser Init
18001
Init Graphical UI
18101
Text UI Init
18201
Audio UI Init
18301
On Message
(msc = true)
27001
On Timer
27005
For Each
Message
27006
Delete Message
27007
Graphical UI
(18100)
Text UI
(18200)
Audio UI
(18300)
Receipt
Acknowledged
27002
Receipt
Acknowledged
27002
Receipt
Acknowledged
27002
Yes
Yes
Yes

FIGURE 27

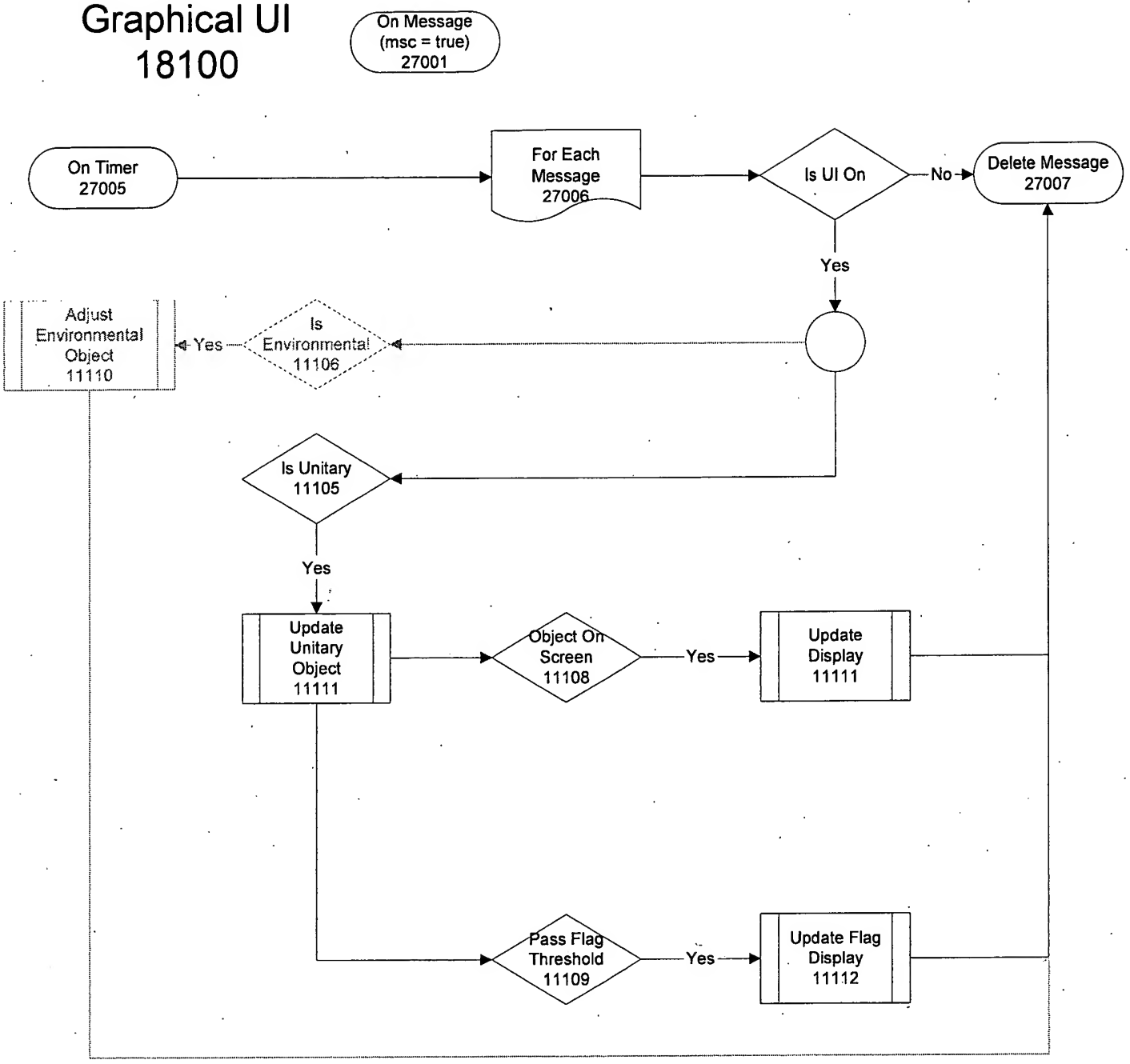

Graphical UI
18100
On Message
(msc = true)
27001
On Timer
27005
For Each
Message
27006
Is UI On
No
Delete Message
27007
Yes
Adjust
Environmental
Object
11110
Yes
Is
Environmental
11106
Is Unitary
11105
Yes
Update
Unitary
Object
11111
Object On
Screen
11108
Yes
Update
Display
11111
Pass Flag
Threshold
11109
Yes
Update Flag
Display
11112

FIGURE 28

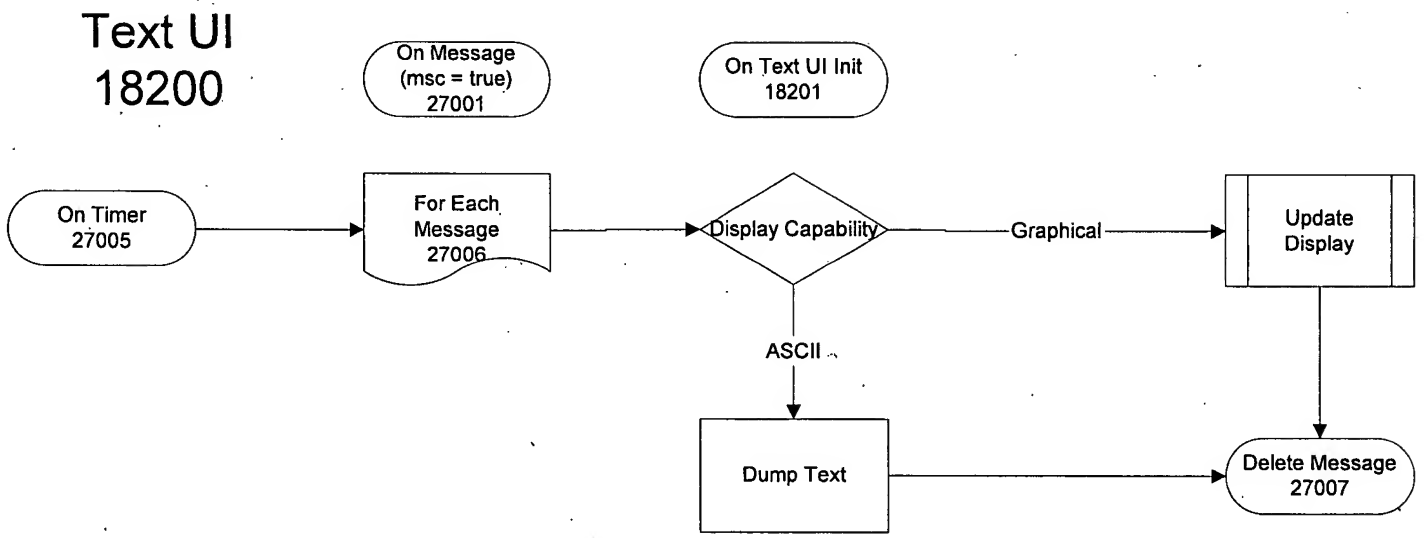

Text UI
18200
On Message
(msc = true)
27001
On Text UI Init
18201
On Timer
27005
For Each
Message
27006
Display Capability
Graphical
Update
Display
ASCII
Dump Text
Delete Message
27007

FIGURE 29

Audio UI
18300

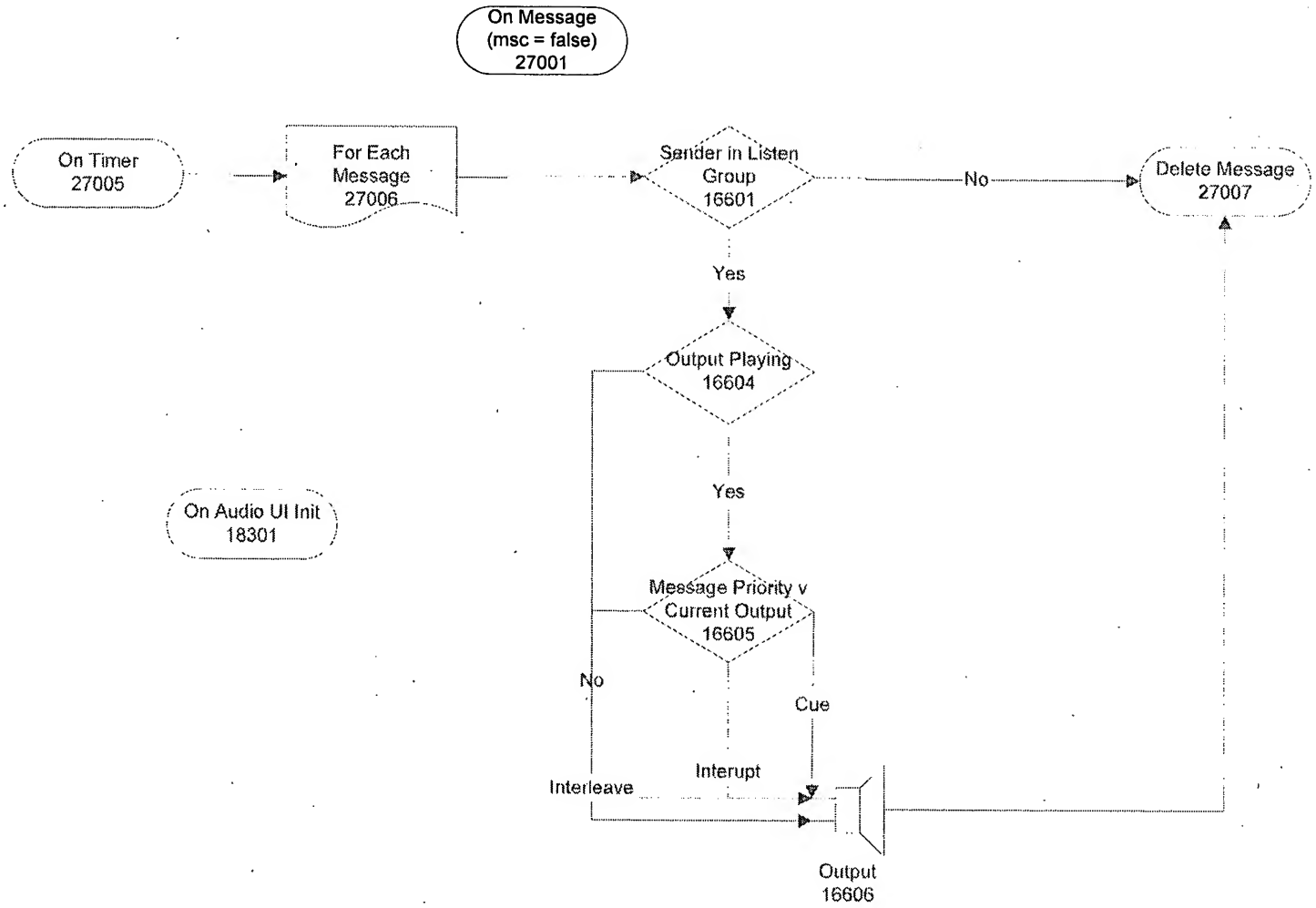


FIGURE 30

GUI Unit Update
18400

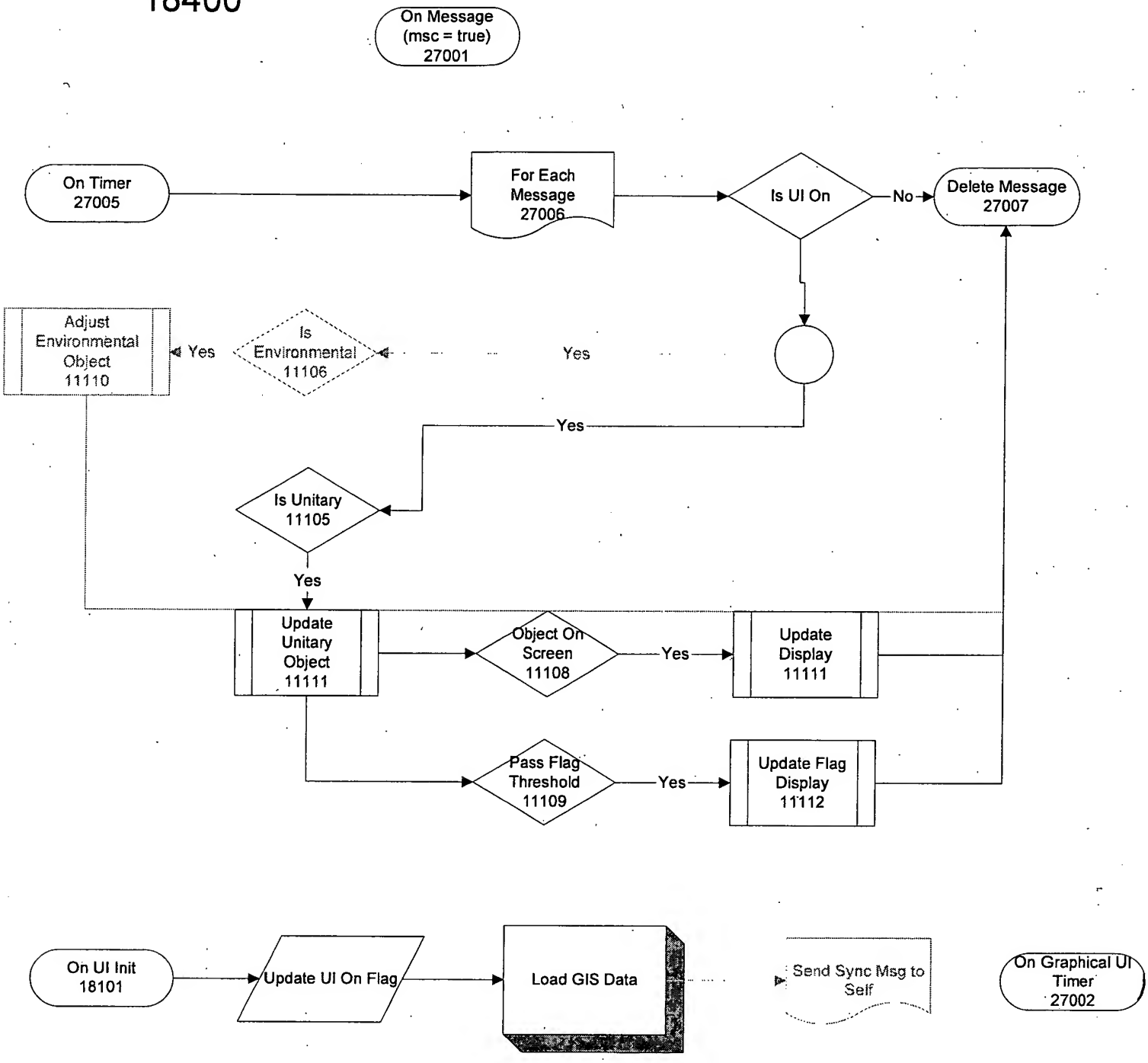


FIGURE 31

GUI Env Update
18500

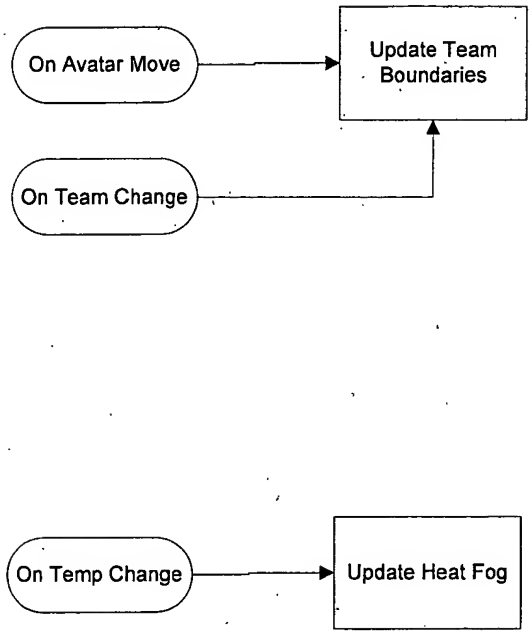


FIGURE 32